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The Question of the London County Council Offices.

THE debate on the London County Buildings Bill last week, in regard both to its tenour and to the vote which followed it, strikes one as a somewhat extraordinary precedent in Parliamentary procedure. Questions in regard to the propriety of the site, and the amount which that and the building cost, might very well have been matters for consideration before a Select Committee. But the House of Commons in this case constituted itself a court to decide on the question whether or no the London County Council required more room for its staff, a matter on which the Council itself certainly was entitled to know best, and acted as the champion of the London ratepayers in a spirit in which, as Sir William Harcourt truly observed, it would not have acted in respect of any other municipality in England. The idea prevailing in the minds of a majority of the speakers seems to have been that because the London County Council's Bill dealt with a metropolitan site, therefore it was to be treated as a State and not a municipal question. But this is a mere geographical illusion. In relation to the House of Commons, the London County Council is exactly in the same position as any other municipality in England. The County Council have established a *primâ-facie* case of want of further accommodation, and it seems extraordinary that, under such circumstances, the second reading of the Bill should have been rejected. Moreover, for the House of Commons to reject a purely Municipal Bill of this kind, not after investigation by a Select Committee, but before such proceeding, introduces a dangerous precedent. It may be that the result of the decision is the same as would have occurred after the Bill had been before a Committee; but practically the House of Commons, by rejecting this Bill when they did, constitute themselves the managers of the Metropolis. There is no difference in principle between rejecting a Bill for a town hall and a Bill for a system of drainage.

Considering the importance and indeed urgency of the question—considering that, as Mr. Whitmore pointed out in moving the second reading, two-fifths of the County Council's staff of 500 persons are housed away from the central offices, at a cost of 6,000*l.* a year as well as of much delay and inconvenience in the transaction of business; that there are often as many as fifty Committee-meetings in a week, with only five rooms available for their use; with all these practical arguments it can hardly be supposed that the question of new offices will be allowed to be indefinitely shelved. In spite of the negative vote of Parliament, therefore, we may consider the question as one that we are likely to hear more of before long. Various objections have been raised against the proposed site in Trafalgar-square, of which the two really valid ones are that the site is of a rather awkward shape to deal with, and that the property upon it is expensive to acquire. The former objection however is rather apparent than real, when we consider what successful plans have been carried out on sites presenting quite as awkward lines: the Manchester Town Hall for example. Beyond these, there appear to be two quite opposite objections urged against it; the one that it is unnecessarily large, the other that it is too small. The former is the special cry of the daily papers, most of which know nothing about the requirements of such a building or the space necessary to provide for them, and merely court popularity by adopting what is supposed to be the ratepayer's view. The latter was the view urged on the County Council by the Art-Committee of the Institute of Architects, which has given a great deal of attention to the subject in a very public spirit, and from an architectural point of view. In the Report of the Establishment Committee of the County Council (June 9, 1896) it is stated that the present offices have an area of 37,400 square feet, and the proposed new site has an area of 84,000 square feet. At first sight this no doubt seems a very large increase in area; but when we consider that the present offices give accommodation for only three-fifths of the staff, that the supply of committee rooms is most inadequate, that the stairs and corridors are far too cramped, and that a large margin must be left for future increase of the business and of the staff (and experience shows that such institutions always are increasing), it will not appear that this is too large a margin. The Establishment Committee, who must have had more information as to their own probable requirements in regard to accommodation than any outsiders could have, seem in fact to have been so satisfied as to the sufficiency of the space that they proposed to devote the ground floor of the new building to shops and business premises, an arrangement which they estimated would still leave double the present floor space available. This proposal, which we suspect was thrown out as a sop to the champions of the ratepayers, as promising a considerable recoupment of the cost of the site, strikes us as a double mistake. In the first place, a larger margin is needed than would be afforded by twice the present floor space, and this proposed employment of part of the ground floor would just throw away space which is likely to be ultimately required. But an almost more serious objection is that such a treatment would be most prejudicial to the architectural dignity and fitness of a building for so important a body and on so important a site. This is so obvious, in fact, that we doubt whether this part of the scheme was ever meant to be seriously adhered to. Wherever and whenever the new offices for the London County Council are built, we have a right to expect that every effort should be made to render them a building worthy of the great metropolitan district the business of which will be carried on there. Cutting and cheeseparing ought to be considered quite out of place on such an occasion.

The Art Committee of the Institute, who have kindly placed before us the information which they have been collecting and on which their views of the insufficiency of the Trafalgar-square site are based, compare this site unfavourably as to extent with that of several Continental Town Halls of which they have procured the block plans, and even, relatively, with the size of some English provincial Town Halls. They take the Paris Hôtel de Ville, which has an area of 14,566 square mètres, and compare it with the 9,333 square yards of the Trafalgar-square site,* and ask how London is to be satisfied with so much smaller a site than Paris for its municipal buildings, which are stated to be already proving too small for

*A mètre, we may remind the reader, is a little more than 3 ft. 3 in. linear measure.

the requirements of the Paris municipal service. But surely they have overlooked the fact that the Paris Hôtel de Ville is a building for municipal hospitality and fêtes as well as for municipal business. It performs, in fact, the functions of the Mansion House and the County Council offices united. The County Council offices is proposed as a business building only; a council chamber and offices. They cite the Manchester Town Hall, of about 7,740 square yards in area; with the natural inference that a metropolitan building for the same purpose ought to be at least twice as large. But they appear to forget, again, that a considerable portion of the Manchester Town Hall is occupied by a great public hall for entertainments, and that no such feature is in question for the London County Council offices. It certainly seems rather unfortunate that a committee representing the Institute of Architects should, with the best architectural intentions, have been advising the London County Council as to the insufficiency of their proposed site, while overlooking what we should have thought such a very obvious difference between the character and objects of the proposed building and of those with which a comparison was made.

The site favoured by the Institute, as suggested in the *Journal* of May 21, 1896, seems at present to be the only one which can be put in competition with the Trafalgar-square site. It consists of a large triangular plot of land proposed to be left at the south end of the new street from Holborn to the Strand, between the spur streets east and west, containing roughly about 17,000 square yards; situated centrally behind St. Mary-le-Strand. There is room enough for anything here, and of course the property taken would be much less valuable. Against this are to be set the three considerations that, for the County Council business, it is not so central as Trafalgar-square; that, as we understand, in the event of the Trafalgar-square site being adopted the present Council Room would be retained and incorporated in the new buildings: it is certainly quite possible to do this and the Council Room itself is a good room and quite as large as such a room can conveniently be for purposes of debate; and that the County Council wish to retain what may be regarded as their historic position in London. This latter predilection in itself may not be worth paying very much for, but it has its weight in connexion with other recommendations.

At all events, with the absolute and proved need, urgent need, of increased accommodation for the London County Council, we cannot possibly regard the Parliamentary vote of the 18th inst. as disposing of the question for an indefinite period; and though there are objections to the site the Council are seeking for we are inclined to think that on the whole the points in its favour predominate, and that most of the objections raised against it have been somewhat unreasonable.

GLAZED BRICKS.

THE use of glazed bricks is now rapidly extending, not only for internal walls but also for external. They possess several advantages over ordinary bricks and stone, and also over plaster and other wall-surfaces, but they have also some disadvantages. They are practically impervious to moisture, easily cleaned, and proof against the acids present in the air and rain. On the other hand, some glazed bricks are easily chipped or cracked, and the glaze may soon be stripped by frost. We do not propose to enter into the question of faïence, but to discuss briefly the two kinds of glazed brick in most common use, namely, *salt-glazed* and *enamelled*. The best bricks of both kinds are produced in the neighbourhood of Leeds and Halifax.

Salt-glazed bricks vary very much in quality, from the ordinary brick fused on the surface by common salt being thrown into the kiln, to the specially-prepared pressed brick, the face of which is dipped into a "slip" of fine clay before being fired and salted. Bricks of the former kind are known as "ordinary" or "common" salt-glazed bricks, and are chiefly used for sewers, manholes, and other places where a clean, impervious surface is required at comparatively little cost. They are not, as a rule, suitable for external or internal face-work in buildings. The dipped bricks, which are generally known as "best" salt-glazed, are also used in manholes, but more largely in urinals, and for dadoes and other internal work, and also for external work, chiefly in plinths, as in the Clerkenwell Town Hall; but occasionally for the whole front of a building, of which there is a good example in Great George-street, Westminster. These bricks are first pressed, and, while still green, their faces are dipped into a "slip" of fine clay carefully weathered and ground, and sifted through fine silk sieves. It is absolutely necessary that the slip should be of the same clay as the body of the brick, otherwise unequal contraction will occur during firing, and a "crazed" surface may result, or even the thin film may "shell off." "Best" salt-glazed bricks are hard, free from surface-cracks, clean, impervious, proof against rain, air, and frost, and almost as smooth as an enamelled brick. Their durability is now beyond question, as they have for many years withstood the atmosphere of London, and numerous smoky provincial towns. From an artistic point of view they are greatly to be preferred to hard-glaze enamelled bricks. The colour of the latter is too uniform, and the effect of a wall built of them is hard, cold, and monotonous; salt-glazed bricks, on the contrary, are full of variety in colour, toning from orange or light red to a deep red-brown, and this variety adds a great charm to the finished work. A further advantage of good salt-glazed bricks over enamelled is that the glazed surface is actually an integral portion of the brick itself, the face of the brick being entirely fluxed or fused by the action of salt; while in enamelled bricks, the glaze is really a thin plate of porcelain or earthenware fused to the face of the brick by heat, and never becomes actually part and parcel of the substance of the brick.

The best enamelled bricks are prepared from a special kind of clay which burns to a buff or "biscuit" colour. The clay is carefully weathered and ground, and then made into brick-shaped blocks, each of which is brought to the proper weight by having some portion removed from the side where a "frog" will be formed. After being weighed the blocks are passed through one or two presses, by which the frogs are formed and the name or initials of the maker impressed upon the bricks. Two methods of adding the glaze are adopted, known as the "wet-dip" process and the "dry-dip." In the former, the bricks, while still green, are dipped in the glaze, while in the latter, the bricks are first dried in a heated shed, and then "biscuited," that is to say, burnt in a kiln to a biscuit colour. Each method has its advocates, but as a general rule, it may be said that the question is determined by the nature of the clay and "slip" used in the manufacture of the bricks. The dry-dip process has one advantage, namely, that all bricks which develop cracks or twists or any other defects in the preliminary burning will not be dipped, and consequently the average quality of the final product is often higher than that attained by the wet-dip process.

When the bricks are sufficiently dry to be dipped, or (in the dry-dip process) when they have cooled sufficiently after the preliminary firing, they are dipped three or four times (with intervals between for drying) into a thin "slip" which will burn to the desired colour, and also into a transparent glaze. Sometimes, however, the colour is added in the latter instead of in the slip. The portion of slip and glaze overflowing down the sides of the brick is scraped off, and, when the face is sufficiently hard, the bricks are placed in the kiln (care being taken to keep the faces from contact) and burnt till the desired colour is attained. Small bricks are placed in the kiln with the others and drawn out at intervals in order to ascertain how the firing is proceeding.

Sometimes on account of the unequal contraction of brick and slip during firing, or from some other cause, the enamel "shells off" the brick, and may be gathered in shovelfuls from the bottom of the kiln. This is a bitter experience for the brickmaker, and the cause and remedy are often difficult to find. Shelling may be the result of using inferior or unsuitable clay for the body of the brick, or of using a slip which does not contain the exact proportion of materials necessary for insuring its adhesion to the clay under all conditions. Frequently all will go well for a time, and then a change occurs in the bed of clay which is being worked, and the bricks will shell until the slip is changed to suit the clay. With some clays it is impossible to use a slip of the finest quality. Yorkshire enamelled bricks have a good reputation in this respect, the enamel literally differing from that on bricks from some other counties as china differs from common pottery; common potter's clay, or ball-clay, is used in considerable quantity in the slip for inferior bricks, instead of the finest kaolin, or china-clay.

Even when the enamel does not shell off, its adhesion may be so slight as to be overcome by a blow or by the natural agency of wind and rain and frost. The nature of the adhesion may be easily tested by means of a hammer and chisel, or, better, by lightly striking the beds of two bricks together in such a way that the edge of the enamel in one brick is brought into contact with the other brick. If the enamel flies off, exposing a smooth surface beneath, the brick must be condemned. If, however, the enamel carries away with it a portion (however small) of the body of the brick, the bricks may usually be accepted as sound.

In the product of each kiln there is always a considerable number of more or less

damaged bricks—bricks with cracked or discoloured faces or with chipped edges. These are carefully sorted, and sold at reduced prices as "seconds" and "thirds." Only perfect bricks are sold as "best," so that an architect need have no hesitation in condemning defective glazed bricks, however slight the defects may be, provided that "best" bricks have been specified. Strict supervision in this respect is greatly to be desired, as otherwise the quality of "best" bricks is sure to deteriorate, as has been the case with timber and other materials.

Enamelled bricks of several colours can now be obtained—chalk-white, ivory-white, cream, buff, salmon, pink, and various shades of red, brown, blue, and green. Black bricks are also made. White bricks are the cheapest, some of the coloured bricks being nearly 50 per cent. dearer. Moulded bricks for plinths, string-courses, reveals, and other purposes, can also be obtained, and also embossed bricks, and bricks with patterns printed in one or more colours. Most of the patterns on enamelled bricks are, it must be confessed, almost as ugly or ineffective as they can be made.

Soft-glaze bricks of the nature of majolica are often made, but, while possessing a richer body of colour (somewhat like salt-glazed bricks in effect, but softer), they are frequently crazed on the surface. They are not considered as durable as the "hard-glaze" bricks, of which we have hitherto been speaking, and should not be used for external work, especially in towns, as the sulphuric and sulphurous acids in the air act injuriously on the lead which forms part of the glaze.

Of the sanitary advantages of glazed bricks there can be no question. In water-closets, urinals, lavatories, bath-rooms, sculleries, corridors, basements, areas, and other places where dirt and darkness are wont to abide, they may be used with vast improvement of "sweetness and light." They may also be adopted with advantage in larders, pantries, and kitchens, and even in dustbins and the inspection-chambers of drains. The "best" bricks of the best makers are now of such excellent quality that little fear of shelling or decay need be entertained; at the same time it must be acknowledged that the makers of some of the best of these bricks do not advocate the use of *enamelled* bricks in the open air in towns—at any rate, in exposed situations.

NOTES.

Completion of South Kensington Museum.

IT is to be hoped that, in spite of the *non possumus* of the Treasury, the suggestion that the completion of South Kensington Museum should be taken in hand this year, as one method of commemorating the longest reign, will not be lost sight of by the Government. We have not heard hitherto of any proposal to celebrate the occasion by a work of art; this would be both a work of art and a work of utility. It is impossible to mention the subject without referring to the absurd attempt made by Sir Charles Robinson, in a letter in the *Times*, to urge that no architectural art should be represented on the exterior of the building; that all we want for an art-collection is a shelter. That is in the true English spirit; other objects of art are of interest, but when it comes to the question of a great building, anything that is cheap will do. It is true that the competition designs for the completion of South Kensington showed an unnecessary emphasis in towers; that is an English weakness also; but in other respects an Art Museum is one of the most fitting occasions for architectural richness and beauty of treatment. In this case, besides, the keynote has already been struck by the rich and effective elevation of the Science Schools towards Exhibition-road, with which the new building must be in immediate contact.

A Sham Institute of Architects.

THE promoters of a society which calls itself the "Institute of Architects and Surveyors" are again sending round printed circulars to those who they presume to suppose will be attracted by their prospectus. The "Council" is composed of persons whom no one has ever heard of, and we observe that the President, one Mr. J. H. Wilkinson, places after his name the letters "F.S.A.," which are universally taken to stand for "Fellow of the Society of Antiquaries," but we find (as we expected) that no such person is known to the Secretary of the Society of Antiquaries. It appears to us that the Institute of Architects ought to take legal steps to prevent the use of a title of which the first and principal portion is identical with their own. Knowing as one does how ill-informed the daily press are, and what blunders they make, in regard to everything connected with architects and architecture, there will certainly be mistakes made in regard to this title—mistakes which may be prejudicial to the real Institute of Architects. Our own readers will not need to be put on their guard.

"Petrifite" Artificial Stone.

WE have recently had an opportunity of examining the process by which "Petrifite" artificial stone is made, as well as many samples. In the manufacture of the material, sand, slate, dust, common earth or mould, sawdust, and waste products of various kinds may be used as a base, the loose particles being compacted by "Petrifite," which, therefore, acts as a cement. It is obvious that the value of the material depends almost entirely on the properties of the cement. Beyond well incorporating the latter in the wet state with sand, or whatever base may be employed, and allowing the whole to set, nothing else is done, the process being exceedingly simple. The nature of the cement was not stated by the makers, but there is no difficulty in seeing that it is of an entirely different character to Portland or cements of that kind. Unless we are mistaken, "Petrifite" is composed essentially of magnesian lime: *i.e.*, lime prepared from the carbonate of magnesia—the magnesite of mineralogists. The cement certainly possesses many remarkable properties. In the samples submitted for our inspection many peculiar substances were used as bases. Amongst others were a piece of moulding consisting of "Petrifite" and slate dust; a corrugated roofing tile the base of which was slate dust and sand; iron oxide and slate dust cast; and billiard table slabs of slate dust and sand. "Petrifite" binds common earth quite readily. In making a path it is only necessary to dig up the surface mould, and mix it with the cement on the spot, then, smoothing it over, the whole sets in a few hours, producing a hard paving material. Tiles, stone blocks, slabs of marble, paving bricks, and slabs made of "Petrifite," mixed with refuse of various kinds, were on view, and there are many additional applications of the cement for building and other purposes. Being a fireproof material it has its advantages in that respect; it may be used as a "fireproof paint," pieces of wood painted with it burning with difficulty. It may be used as wall plaster; for making sewer and other pipes, &c. It is almost non-porous, and in the shape of stone blocks bears a great crushing strain, quite as high as many good, natural stones. From the general chemical composition of "Petrifite," and from its structure, as seen under the microscope in thin sections, which latter show it to be of a semi-crystalline nature, we imagine it would stand well in the atmosphere. The material undoubtedly has a future; something like it has been in use in Germany for a few years, and has given satisfaction.

The Trial of Patent Cases.

SOME discussion has been taking place recently among those interested in the settlement of legal points which arise in regard to patents, on the desirability of having all patent cases assigned to one judge for trial. During the last sittings of the Courts Mr. Justice Romer was almost entirely engaged on the trial of patent cases. It is argued that if shipowners and merchants have, in the Admiralty Court and the Commercial Court, a special tribunal, why also should not those who are concerned in litigation as to patents. The reasoning is sound. There can be no doubt that it would conduce to the satisfactory and to the prompt disposal of patent trials if they came before the same judge. No new procedure is necessary, all that is required is an order by the Lord Chancellor assigning all the patent cases which are set down for trial to one judge. They should be placed on a separate list to be dealt with at the judge's discretion. Whether the patent cases should have priority, or the judge only take cases other than patent cases if none of the latter are ready for trial, is perhaps a matter open for discussion. We are inclined to think that if the lists of the other Chancery judges were freed from patent cases, the judge to whom this class of litigation is assigned might well give it priority over other business, and merely deal with the latter as a kind of extra work on such days as patent cases were not ready for trial. Such a change would be entirely in accordance with the tendency of modern business.

Continental Exhibition Finance.

As we have observed, there were last year a large number of national exhibitions on the Continent; we have at times specially referred to those at Berlin, Buda-Pesth, Nichninovogorod, and Geneva. The various reports of the financial results of these exhibitions are now accessible, and are practically all unsatisfactory. Commencing with the Geneva Exhibition, which we considered badly managed, the deficit is 20,000*l.*, whilst for the Industrial Exhibition at Berlin, if we are rightly informed, the guarantors will have to pay at least 75,000*l.* The exhibitions at Nichninovogorod and at Buda Pesth were not intended to be commercially successful, as they were primarily of historical importance. The extra expenditure above the estimates is, however, in both instances enormous. Of the smaller exhibitions at

Dresden and Malmoe (in Sweden) we at least do not hear of a deficit; but nowhere, even in connexion with the smallest exhibition, do we hear of good financial results. This, we think, should be a lesson to those who promote so-called "National" exhibitions, and who, during the early stages, are generally so optimistic as to the financial results.

The Future of the Paris "Salons."

IT appears that the Department of Fine Arts in the French Ministry has appointed a special Committee to consider the question of making provision for the exhibitions of both the Paris Salons during the years 1898 and 1899, when the buildings in which they have hitherto exhibited will not be available owing to the preparations for the exhibition of 1900. What the result will be is very doubtful at present. It is much to be wished that this difficulty could be made an opportunity for amalgamating the two Salons, which would be a great deal better for the artistic standard of both exhibitions.

The Presentation to Mr. Watts.

THE remarkable tribute of esteem and admiration which has been offered to Mr. G. F. Watts on the occasion of his eightieth birthday is a gratifying proof that, in spite of the prevalence of a taste in the present day for what is superficial and sensational in art and literature, there is at least among us a considerable leavening of persons who can appreciate and honour an artist of high and serious aims, and a personal character so noble and sincere as that of our greatest living painter. Probably one may assume that the tribute was paid as much to the man as to the artist. If, however, the remarks which we have read to the effect that it was felt that "Mr. Watts was something more than a painter," &c., are taken to mean that part of his claim to this honour arose from his attempts, in recent years, to render painting subservient to the reading of moral, philosophical, and historic lessons, we must so far dissent. It is rather, we think, Mr. Watts's one weakness—a noble one no doubt—that he has attempted of late to make painting do what cannot be done with it, without interfering with its purely artistic ends.

The Wallace Bequest.

THE announcement that the most important portion of the great art-collection of the late Sir Richard Wallace is to be given to the nation is one over which all lovers of art may well rejoice. The collection included in it of the works of Meissonier and Decamps, to which we devoted a long article a good many years ago, would alone render it a national art-treasure of a most precious kind. It is to be hoped that the condition that a special gallery should be erected for the collection will be carried out in a liberal spirit, and that the architectural framework will be worthy of the treasures it is to contain.

Peterborough Cathedral.

IN the north-west pier, 4 ft. from the face of the front adjacent to the passage, an owl's nest has been found, about 9 in. diameter of entrance; in it were the usual twigs, bones, &c. This is a demonstration by nature of the character of the material of the filling. The birds and bats take the view of the Society of Antiquaries and the S.P.A.B., and resent the interference of the Dean and Chapter.

Carisbrooke Castle.

A RUMOUR of a rather alarming nature was recently circulated in the Isle of Wight to the effect that Carisbrooke Castle was to be "put into a state of thorough repair." The statement was made, in addition, that plans for this alleged future repair were to be laid before her Majesty in the early spring, for her sanction. Probably this apparently authentic report arose from the erection of the scaffolding at the gateway for the museum works inside it. However, no such "thorough repair" appears to be contemplated, and official information from the Secretary of the First Commissioner of Works and Public Buildings has been forthcoming, to the effect that not only is the museum being built under the control of the Board's officers, but that permission to construct it was granted under the express condition that the exterior should not be interfered with.

Electrical Fires.

THERE are several new precautions recommended to be taken for protection against fires in the latest edition of the Liverpool, London, and Globe Company's Installation Rules. Contractors would do well to read the rules for "conductors," which have been largely rewritten; they will find several useful hints as to the methods of protecting casings under floors, passing vertically through floors, &c. Several additions have been made to the rules for electromotors; for example, that every motor should be legibly marked with the speed at which it may be run, and the volts and amperes it is designed to use at full load. The necessity for this rule shows that there must be a large number of inferior motors in use. Another rule, suggested by the recent fire at St. George's, Hanover-square, is that every motor should be enclosed in a fire-proof case which should form part of the motor itself, and not be an added removable covering. The company recognise that the switchboard forms the point of an installation at which fires most frequently start, and they should therefore be made as incombustible as possible. They point out that special precautions should be taken against earth faults arising from resistance and choking coils in the circuit, a point upon which we have always laid great stress. Electricians will be interested in the warning to central stations to run the conductors from the accumulators in such a way that if on fire they could not form short circuits destructive to the accumulators.

An Insanitary Village.

DR. R. BRUCE LOW'S report to the Local Government Board on the water supply of Long Buckby in the Rural District of Daventry, Northants, gives one of the worst accounts we have seen of the pollution of water supply by a bad drainage system. The village is not sewered. Larger houses have cesspools, some of which are so constructed as to allow fluid sewage to soak away, and therefore they require little trouble in emptying. Excrement is disposed of mainly by vault or cesspit privies situated in back-yards, and emptied, usually at long intervals, by the occupiers on fields, allotments, or gardens. Some cesspits have recently been cemented, but the majority have not, and are therefore not watertight. The ashpits and middens are emptied sometimes once sometimes twice a year by the occupiers. Large accumulations of house refuse that had long ago overflowed from the midden or ashpit on to the adjacent ground were frequently seen, the occupier's usual excuse being that some farmer had failed to fetch the manure when requested to do so. "In such instances the filth lies for some hours or days exposed to rain and sun, creating nuisance, sometimes by soaking into the ground and polluting it, at others by being blown about in the village as excrement-laden dust. In several instances excrement from the privy had been spread on the garden close to the house." When after this we read that "Long Buckby derives its water supply from about 116 local wells," we are not surprised to find that there are serious complaints as to the character of the water.

Wellington-street, Strand.

SOME interior alterations, together with the erection of an additional gallery, or sale-room, are being carried out by Mr. H. Roffey, of Putney, builder, under Mr. Emden's superintendence, at the premises of a well-known firm of auctioneers in this street. The firm of Sotheby, Wilkinson, & Hodge, was originally founded by Samuel Baker, in 1744, at a house in York-street, Covent Garden. In 1804 the business was removed to No. 141, Strand (opposite Catherine-street), and in 1818 to No. 3, since renumbered 13, in Wellington-street. Mr. John Wilkinson, late senior partner, died three years ago, aged ninety-one. Jacob Tonson's house, the "'Shakespeare's Head,' over against Catherine-street, in the Strand," was afterwards numbered "141"; as rebuilt, it was occupied by Andrew Millar, publisher, by the sign of "Buchanan's Head," and next by his quondam apprentice, Thomas Cadell, alderman, the friend and publisher of Gibbon. Messrs. Foster & Dicksee, of Rugby, and Manresa-road, S.W., are contractors for the new buildings at the corner of Wellington-street and the Strand, the architect being, we are informed, Mr. A. N. Bromley, of Nottingham. For those premises, which stand back 11 ft. from the former alignment, have been pulled down the houses numbered 134-138A, Strand, and Nos. 2-8 (even) Wellington-street, as far as the front (west) of Somerset House. Thus has disappeared Duchy-place, or court, a descent between Nos. 136 and 137, Strand, on the Duchy of Lancaster estate. It formed the boundary, on that side, of the precincts of the Savoy, and, moreover, marked the position of the Strand Bridge, as laid down on the Ordnance Survey. Vertue's survey and view of the Savoy was done in 1736 for the Vetusta Monumenta; an earlier plan, by Wren, is in the Soane Museum.

Exhibition of the "Peintres Orientalistes."

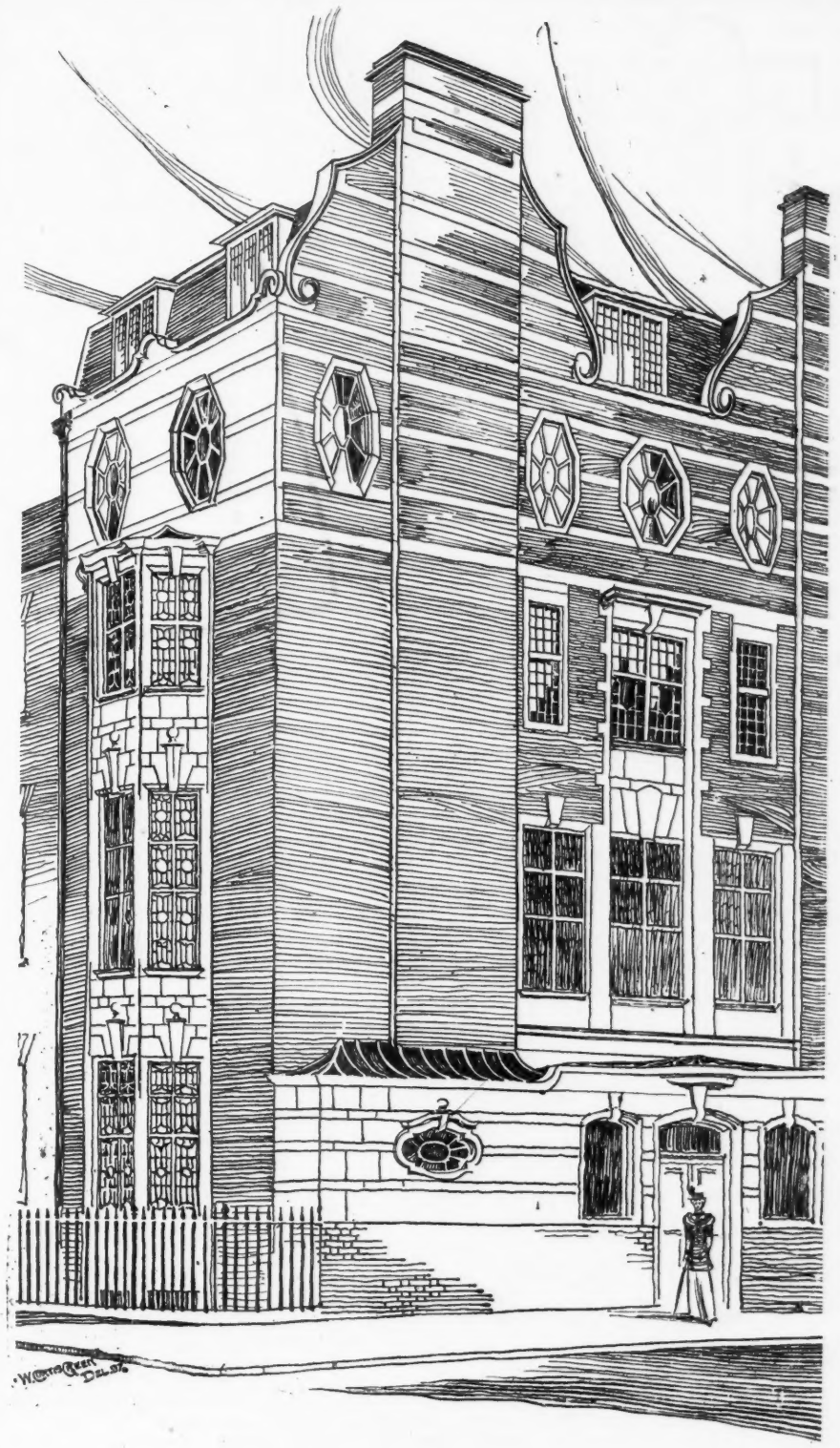
THE society of French artists under this title has just opened its fourth exhibition in the Durand-Ruel Gallery in Paris. The exhibition, which is an interesting one generally, includes a fine collection of the works of Théodore Chasseriau. Among other works of special interest may be noticed the studies of Algerian life by M. Gabriel Rigolot, the "École Arabe" of M. Taupin, and the paintings by M. Dinet, whose "Courtisane"

in particular has a force and power of colour which recalls the oriental subjects of Delacroix. Among others of the most prominent works are the "Fête des Morts chez les Juifs" by M. Girardot, the "Vues d'Egypte" in which M. Morand has conveyed such a strange sensation of pathos; the "Cimetière de Tunis" by M. Nézière, and the "Etudes d'Orient" by M. Charles Landette. It may be observed that this exhibition is entirely free from the artistic commonplaces which are so abundant in many of the minor exhibitions in Paris.

SKETCHES OF LONDON STREET ARCHITECTURE.—X.

No. 163, Sloane-Street.

This is not a new house, but a conversion of an old one. The aim was to get away from the red brick mania; so the old stock brick walls remain, and Monk's Park stone is used for the window dressings, bay window, &c., and the stone is massed at the entrance and in the top story. Mr. Fairfax B. Wade is the architect.



Sketches of London Street Architecture.—X. No. 163, Sloane-street. Mr. Fairfax B. Wade, Architect.

THE ADVANCEMENT OF ARCHITECTURE *:

WITH REMARKS ON THE STUDY OF GOTHIC.

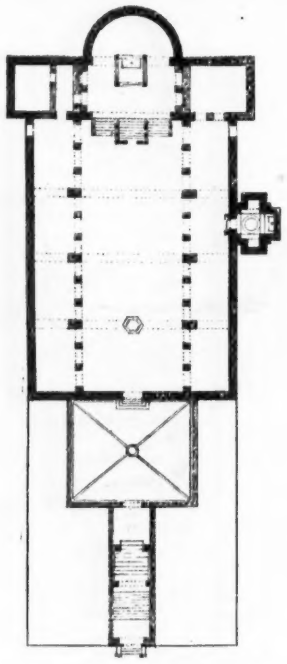
Plans.

Plans are not only necessary, but are interesting in many particulars. They are necessary to show the sizes and arrangement of buildings, as well as the thickness of the walls, the sizes of the piers, and other independent supports. They are interesting to architects, at least, from showing certain peculiarities or excellencies of disposition, and of suggesting difficulties in construction, and the most important, perhaps, is that of suggesting how large spaces are to be roofed. In Greek times several temples remained hypæthral from the difficulty of roofing wide spans with the timber they had, and their knowledge of trussing. In Roman days, when almost all large and important buildings were vaulted, though their method was to abut the concentrated thrust of groined vaults by dead weight, yet we can see the care they took, and the ingenuity they displayed in utilising the walls of adjacent chambers for this purpose. And it must be borne in mind that as their vaults when once set had no thrust, being constructed of horizontal courses of rubble or concrete, yet this thrust was very serious while the work was green, and we see that what were practically flying buttresses were used to abut the vast vaults of the Basilica of Maxentius, those of Caracalla's Baths, and elsewhere. Gothic vaults were elastic, and depended for their stability on counter-thrusts, and where the dead weight was carried by slight columns, large buildings, such as abbey churches and cathedrals, were designed downwards from the vaults, the plan showing the directrix of every vault, thus giving the plan a great additional interest. Plans also suggest effects, such as that of extreme length or width, and the combination of agreeable forms, the size and situation of the windows, and the thickness of the walls; they give some notion, too, of the climate in which the buildings were erected. A rough idea of the purposes for which a building was to be used is also to be gained from the plans, but from its very vagueness it gives great scope to the imagination, as well as a stimulus to deduction. I may say that no detective story of Gaboriau's or Poe's can require more patient investigations or more logical deductions than the plan formed by the walls of a destroyed building when we are not intimately acquainted with the particular occupations of the people who inhabited or used the building; and in this respect the uses of buildings and of particular parts of them are much more complex than the motives of crime, or supposed crime: plunder being the usual motive, occasionally jealousy, hatred, revenge, or madness, and sometimes the supposed crime was caused by accident. Take the Roman baths for example, nearly the whole of Latin literature teems with allusions to the bath and to bathing, and yet the uses of many of the chambers cannot even be guessed. To speak of Constantine's Baths alone, there were two galleries some 20 ft. wide, and 100 ft. long, shown by Palladio to have been vaulted, whose use we cannot even guess. We are perhaps not quite so badly off in respect to the cathedrals and great abbey churches, as there must be traditions, one would think, and we know some of the reasons for some of the shapes. Constantine gave some of the ancient basilicas to the clergy which were in the old Taw form; and I believe it is stated that he dreamt that some church he was having built should be of cruciform shape. We know, too, that some time between the sixth and ninth century each aisle of a church was dedicated to a separate saint, and apses were put at the east ends of the aisles. Sta. Prassede, at Rome, built in 817, has not got these apses to the aisles, and yet Sta. Maria, in Cosmedin, said to be built in 772, has them; though I cannot affirm that these aisle apses are not of later date. I merely mention these matters to point out that if the reasons of some peculiarities are unknown to us, the reasons might be found out by a closer attention to changes in ecclesiastical ritual, to favourite methods of decoration such as stained glass, to structural reasons, and to what I may perhaps be allowed to call taste, that is, the æsthetic effect certain proportions had on the people who paid for the structure.

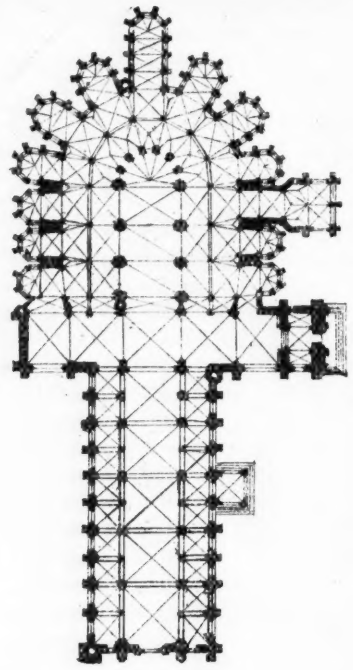
I begin by giving you the plan of the great Renaissance Cathedral of St. Peter, about whose area there seems to be the greatest divergence of calculation, as the area given varies from 227,069 to 150,000 superficial feet, and though one may have taken it at the line of the main wall, and the other at its extreme projection on the ground, one can hardly suppose this immense difference could be due to such a cause, but must suppose that it was due to one or both of the plans from which it was measured being inaccurate. I think, however, that it is agreed that its area of supports are more than one-fourth, or ·26 of its whole area, the total area of Notre Dame at Paris varies in different authorities from 67,343 to 54,050 superficial feet, while its area of supports are little more than one half that of St. Peter's at Rome, or one-seventh ·14, and I believe that this is a considerably larger percentage than other large vaulted French churches and cathedrals have; I think St. Ouen is said to be but one-ninth.

Some of the Roman baths have large halls,

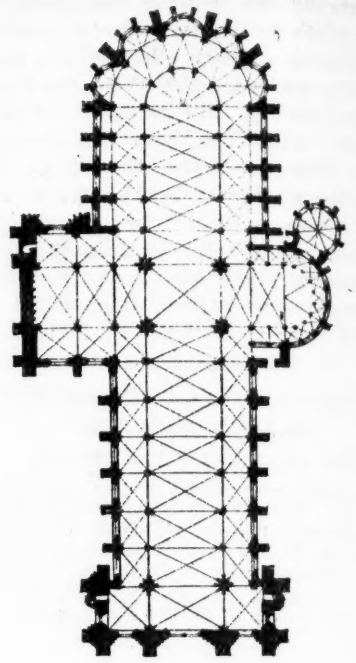
* Being the fourth Royal Academy Lecture on Architecture this session. Delivered on the 4th inst. by Professor Aitchison, A.R.A.



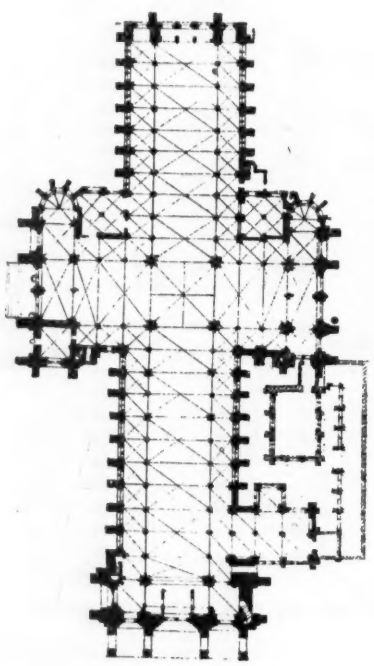
Santa Prassede, Rome: 817—824.



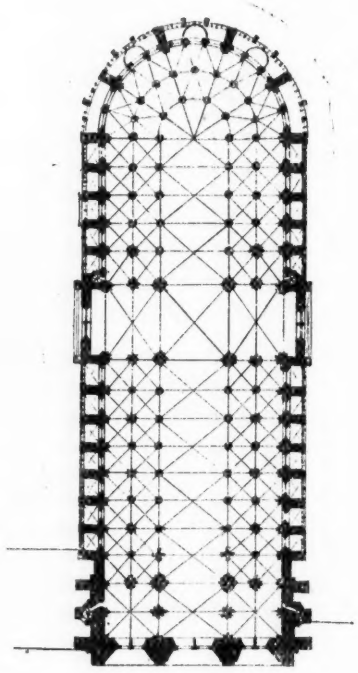
Mans: 11th—13th Centuries.



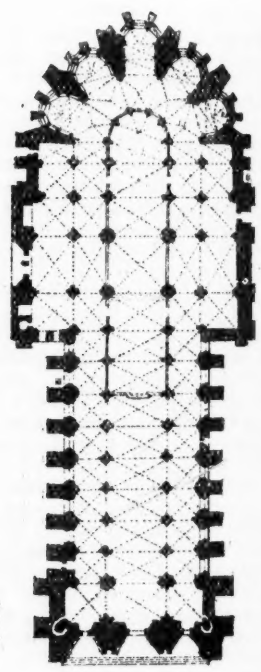
Soissons 12th—13th Centuries.



Laon: 12th—13th Centuries.



Notre Dame, Paris: 13th Century.



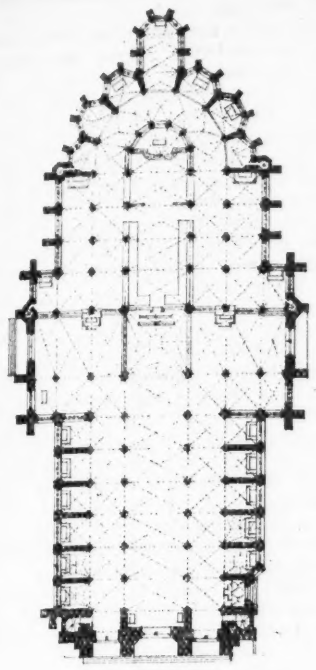
Reims.

Illustrations to Professor Aitchison's fourth Royal Academy Lecture. Comparative Plans of Cathedrals. (No scale.)

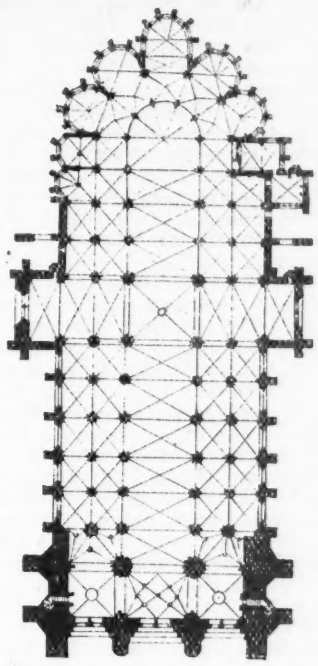
*** As these plans were supplied to us by Professor Aitchison on various scales, and mostly without any scale appended, we have thought it best to ignore scale in this instance and reduce them to the same size, as the real object is not the comparison of size but the comparison of plan and of the proportion of piers to spaces.

something under 200 ft. long, 80 ft. span, and 100 ft. high, and these are mostly the warm rooms or Tepidaria, but these are not to be compared to the great cathedrals in length, which are often nearly 500 ft., nor in height can they compare with Amiens or Beauvais, which are respectively 140 and 153 ft. high; and though the cathedrals with the widest spans such as Seville, Milan, Florence, and Bologna, do not exceed about 56 ft. span, yet most of them are supported on comparatively small isolated piers. As far as towers are concerned, the Romans, we believe, never reached half the height of the Mediæval spires. Those of Antwerp and Chartres are said to be 403 ft., Salisbury 404, that of the Cathedral of Vienna 441, Strasbourg 468 high, and these are by no means plain, sloping, corbelled out spires; for the spire at Strasbourg, at least, was of lace work. To revert to certain peculiarities, I may point to the five Absidioles in the apse of Vezelay, which is so characteristic a feature in most of the French cathedrals; those at Vezelay were probably put in when the choir was rebuilt after the fire, 1167, and may be found at Westminster Abbey; the fifth one, probably the Lady Chapel, having been removed to make an entrance to Henry VII.'s Chapel, but in most of the principal English cathedrals they do not exist, though there are the early adopted Absidioles in the east transept of Lincoln, Canterbury, and Gloucester, and in the latter church there are two Absidioles in the retro-choir. At Notre Dame, Paris there were three, before it was enlarged by taking in the space between the buttresses. There are five in the following cathedrals and churches: Chartres, Soissons, Clermont, Alby, St. Ouen, Narbonne, Limoges, and Tours. There are six besides the Lady Chapel at Amiens, at Coutances and at Troyes, and ten at Le Mans.

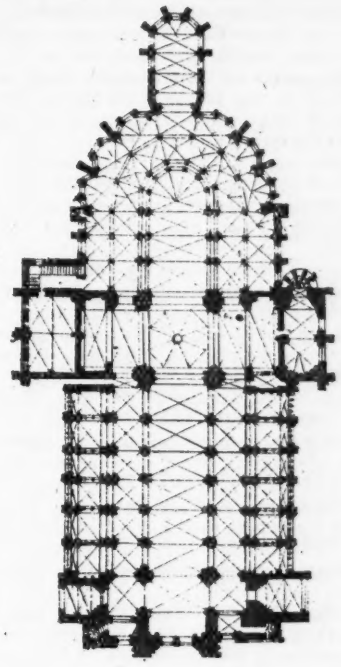
As regards the east ends of cathedrals in France, they were mostly semi-circular or polygonal, except at Laon, which was possibly built under English influence, and has a square east end, while in England they are mostly square. The Saxons are said to have mostly had square ends to their churches; besides, square ended churches give less trouble in vaulting. When churches became a mere framework for stained glass, a large extra surface for glass was got by keeping the east end square, thoug at the expense of artistic effect. Probably two things then desired were gained, the certainty of the east window being looked at, and the avoidance of the worshippers turning their backs to the altar; but by doing so, the proper effect of the altar and its ministrants is spoiled, it ought to be well lit by screened side-lights, and stand out light against a mass of shadow, as may be seen at Strasbourg. When Justinian dreamt that the apse of Sta. Sophia ought to have windows, to say the least he had an unfortunate dream, for nothing destroys the effect so much as having the light right in front of you as you enter. Nothing, in my opinion, has a worse effect than boxing in the choir, it looks like a small building that has fallen into the large one, and merits Charles V.'s disgust at the clergy, for putting a new church into the middle of the mosque at Cordova. At St. Mary-of-the-Blossom at Florence you see the altar as the main feature on entering at the west, with the vast dome as its canopy. The greatest mistake in



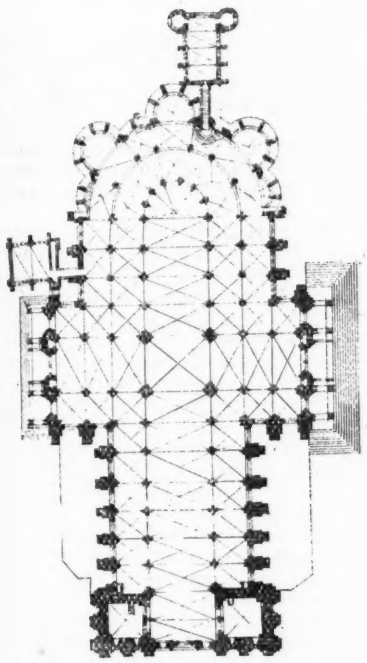
Amiens.



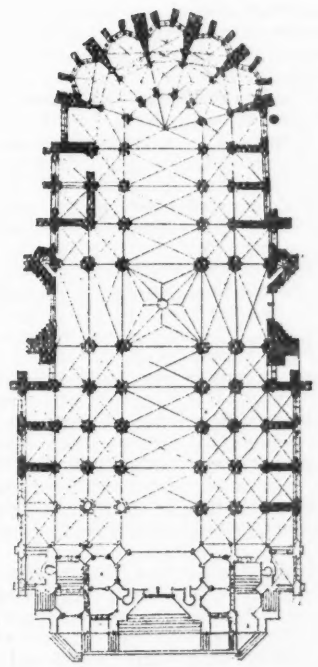
Troyes: 13th Century.



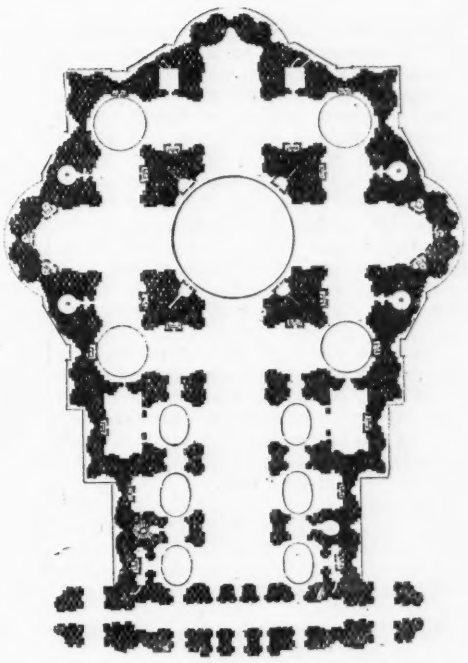
Coutances: 13th Century.



Chartres: 13th Century.



Clermont: 13th—14th Centuries.



St. Peter's, Rome.

Illustrations to Professor Aitchison's fourth Royal Academy Lecture. Comparative Plans of Cathedrals. (No scale.)

cathedrals and large churches is the uniform lighting, which destroys all effect. Certain parts want the most brilliant lighting attainable, but these light spots should be set off by a proper background of gloom. In those buildings especially that are dedicated to emotional use, and where mystery and awe should be awakened, no artistic blunder is so colossal as to sacrifice a grand emotional effect to uniform lighting. As a rule the cathedrals at home and abroad miss the emotional effect of lighting altogether, except at dusk or when there is evening service in the winter, when there are violent transitions from brilliant illumination to the deepest gloom. The finest daylight effect is to be seen at the Pantheon at Rome lit by that single eye, which is quite worth a journey to Rome and back to experience the emotion it causes. Admirable effects are to be seen in cathedrals and churches when it is dark or even dusky, and there are artificial lights. At the Basilica of St. Mary the Greater at Rome one chapel is occasionally illuminated of a night, and you have to pick your way to it through the gloom, lit perhaps here and there by a small dim lamp. The effect of one illuminated chapel amidst "this mighty contiguity of shade" is not only picturesque but wondrous.

The only time that Milan Cathedral is impressive is at early service in the winter. The vaults and even the capitals of the vast piers, hidden by rolling wreaths of mist, while dim figures, but partially outlined, are seen hurrying to the chapel, lit, perhaps, but by one lamp, whose light pierces through the darkness. In the old days, the two bronze pulpits stood out blacker than the gloom, and marked out the extent of the enclosed choir, now they are bedizened like a French plum-box, and utterly cease to be effective in daylight or at dark.

One aim of the late Gothic architects was to make a whole church nothing but a picture-gallery of stained-glass, wonderful as a constructive architectural effort, but mostly destitute of effect, for when the glass painters began to pride themselves on their drawing, you have large Scripture subjects with the principal figures transparent, and generally of poor colour. In the old glass the painter's aim was to get colour and to be careless of form, so he made most of his Scripture subjects to a small scale, but he got glorious and divine colours from the sunshine streaming through the windows.

At Chartres you get a heavenly effulgence of resplendent and harmonious colours through the windows, throwing beams of loveliness around, which "dissolve me into ecstasies and bring all heaven before mine eyes." We can now admirably imitate the bad drawing and miss the divine harmonies of colour!

The early Saracen conquerors believed that the Almighty had given David that power over iron that it could be woven like thread in his hands. Stone was like this in the Gothic architects' hands, they knew its powers thoroughly, and could do what was possible with it. I do not think its tensile strength was ever turned to architectural account in Europe until Late Gothic times, when you see vaults springing from pendants, as at Henry VII.'s Chapel, and at St. Ouen, and it was then that the men of genius did those feats with stone which astonish and almost awe us; just as a great composer, who is a great performer as well, throws his rules and canons to the wind, and lets his emotions carry him where they will, so that he may captivate and enchant his audience and carry them to the summit of ecstacy or to the depths of despair. If we want to attain this power we must submit ourselves to the training that the Romanesque and Early Gothic architects went through.

There is every reason to believe that all the great building races, Egyptian, Greek, Roman, and Mediæval, had some set proportions for their

buildings arranged by some method of triangulation. Cæsare Cæsariano tells us in his edition of "Vitruvius" of 1521, that the Cathedral of Milan was set out by the German architects on a figure of two equal equilateral triangles put base to base, the apexes of both triangles being on the vertical centre line of the building, and that the east face of the polygonal apse was drawn at right angles to the centre line from this apex, the other apex gives a point a little inside the west wall, the base of the two triangles giving the east walls of the western staircase towers of the transept, and although the plan does not exactly agree with this statement, it may be from bad drawing, bad engraving, or the unequal shrinking of the paper. Cæsare also speaks of many more systems of triangulation inside than those I have just spoken of, but it seems to me that the German architects gave him very vague or imperfect information, for he gives the main dimensions of the building in Braccia. There is, though, one triangle in one of the sections that gives us something definite; an equilateral triangle, whose base is the distance between the internal faces of the walls on the pavement line, settles the central vault of the nave, as these lines are tangential to the sides of the pointed arch. Viollet-le-Duc believes that there were some general proportions adopted in cathedrals and other Gothic buildings, but he is not much clearer than Cæsariano himself; so I think we may say that, though it is most probable that the Gothic architects had some rule, it has not yet been discovered. We know, however, as regards the insides that one great aim was to strike awe by disproportion, *i.e.*, by making the naves and choirs enormously high in proportion to their widths.

It is most extraordinary what strange views are taken of the importance of certain measurements as compared with others; for instance, as regards width, the span of the widest vault is the most important; and next to that the height of the nave looked at from a constructive and from a certain æsthetic point of view. Even in so common a thing as a handbook, one might expect that the width of the nave could be taken by a local antiquary, with the help of the verger and a tape, and now, with one of those gas inflated india-rubber balls and some string it is not difficult to get the height of the nave. Even architects mostly decline putting on the general lengths and widths in figures, leave out the scale, and put on the ratio in writing, which is aggravating enough when the scale is in English feet, but when it is in mètres it renders the task impossible for the time, *i.e.*, until you get a mètre scale. We have to thank M. Gosset for putting a scale to the plates in his monograph on Reims Cathedral.

I append a list of some French cathedrals, with the length, span, height of nave, height of towers, with a note of their transepts and their aisles.

Also a list of some of the English cathedrals, with their areas and the other particulars, as in the French cathedrals. The dimensions are taken partly from Fergusson, and partly from Lord Grimthorpe's book.

[The lists referred to will be given as an appendix at the end of the lectures.]

THE ARCHITECTURAL ASSOCIATION:

THE ARCHITECT AND THE PUBLIC.

An ordinary fortnightly meeting of this Association was held on Friday last week, in the Meeting Room of the Royal Institute of British Architects, No. 9, Conduit-street, Mr. Beresford Pite, President, occupying the chair.

The minutes of the previous meeting having been read and confirmed, the following gentlemen were elected members of the Association:—Messrs. S. E. Barrow, C. B. Chesshire, and T. M. Wilson.

On the motion of Mr. E. Howley Sim, Junior Hon. Sec., a vote of thanks was passed to Mr. Sidney R. J. Smith for recently conducting the members over the National Gallery of British Art, Millbank, and for providing refreshments on the occasion.

Mr. Banister F. Fletcher, Senior Hon. Sec., said that Mr. Wallace Rimington had kindly made arrangements by which members of the Association might be admitted to the exhibition of his drawings at the Fine Art Society's Gallery. Members would be admitted by presentation of their tickets of membership.

The Chairman then called upon Mr. W. H. Bidlake to read the following paper, entitled "The Architect and the Public":—

The public is not inherently or intuitively antagonistic to the architect, nor the architect to the public. Some assume that this state of hostility does exist. On the contrary, each stands for a mutual help to the other. I must live and be sheltered. This want you will satisfy, and you will make my shelter beautiful for me. For all this I will assist you in turn towards living and being sheltered. What arrangement could be more just? Quite true, but yet the working of the arrangement might undoubtedly be more harmonious. Then comes the question, How? That is the subject for to-night's discussion.

The world is divided by the English schoolboy broadly into two classes: What is good to eat, and what is not.

To the architect society appears in similar fashion divided into two groups—clients and non-clients. The architect has the advantage of the schoolboy: he can regard any member of the public as a potential client—perhaps would be wise to do so—but the small boy cannot regard, in the same way, his rod of chastisement as a potential plum-cake. Literally, too, every taxpayer and ratepayer is a client where state or municipal buildings are concerned. Of course, he will take an interest in the matter, will see, as far as he can, not only that money is wisely expended in a well-constructed and convenient building, but that its architectural beauty shall gratify his citizen pride. In securing economy he will undoubtedly take an interest, beyond that, not the slightest.

The unwelcome fact may be faced at the outset. The British public is profoundly indifferent to architectural matters. Some one perhaps says no. I reply, "Brompton boilers." From this lethargy one will occasionally awake, and, with a volume of Ruskin in his hand, vehemently denounce the modern architect and all his works. To me it seems immensely to the credit of architects that in the teeth of this public indifference so much good work is done.

No wonder Seti or Rameses could count upon the production of a hypostyle hall at Thebes, superbly grand. The services of the architect were then regarded as amongst the highest in the State.

Under Pericles every Athenian gloried in each fair jewel of that architectural diadem that crowned the Acropolis.

At Florence, in the days of the Renaissance, the same keen interest in architecture invigorated the air her great builders breathed. It braced them to surpass each other, to surpass themselves, to rear works that should be the subject of public praise, even of public gratitude. And of the many great men of that period who practised Architecture some have achieved immortal fame.

When a people is deeply touched in its heart and emotions, especially when it has been emancipated from some yoke and is intoxicated by the spirit of freedom and hope, then is there an outburst of music and song, and exquisite and grand creations of Art.

Such was the case amongst the Athenians after the overthrow of the Persians at Marathon and Salamis, and such, when at the Renaissance, men threw off the superstition and tyranny of the Church which had held them in moral and intellectual slavery.

A certain degree of wealth ungrudgingly spent is necessary before the enthusiasm of a people can express itself in grand architecture. But easy commercial prosperity makes men content with the uneventful commonplace present; it does not set them longing or idealising. Physical luxury and social position is what they ask, and that they may be left alone to make money. Life runs smoothly, and surface currents do not disturb deeper emotions. The arts, however, minister to the pleasures of life amongst those who are cultivated to feel their influence, and so, even in easy commercial days like these, they may not only flourish, but progress in a steady, quiet fashion, provided that public apathy be replaced by a keen appreciation. For no lovely flower blooms in the garden of neglect.

An architecturally appreciative public would stimulate the architect to produce his best. He would produce better work then than he could do in an indifferent world. All his faculties would be awakened. The prospect of public commendation would stimulate him to create something worthy of public praise. But, gently! He will need more than that. Public praise is very well, but what if it be the applause of ignorance. Public appreciation, to have any worth and to be capable of influencing the best men, must be critical, and founded on knowledge and good taste. Else will it only be despised.

This leads us to consider a second unwelcome fact. The British public is profoundly ignorant in architectural matters. How could it be otherwise? Indifference breeds ignorance, and ignorance indifference.

People for the most part do not even know what architecture consists in. Some seem to regard it as the application of archæology to modern building, a view which has been fostered by architects themselves. There are some clergymen, for instance, who have studied Parker's "A.B.C. of Gothic Architecture," or have mastered the terms in a glossary, whose lecturing on correctness of style the architect finds much more trying than modest ignorance. And we may, no doubt, recall one or more amateur architects whom a little knowledge has made extremely dogmatic.

The popular idea of architecture is that of ornamenting buildings. Here is a barn or factory. Only cover it with sufficient ornament, and it will become architectural. The ornament may be inappropriate and misplaced, it matters not. Before it was a plain, ugly building, now it is a beautiful one; it is a work of architecture. Such a view might be pardoned in an uneducated man, but it is the view of many an otherwise well-educated man. It is notorious that many people of taste who can appreciate good music, and painting, and literature, fail in understanding the excellences of good architecture.

If a building is treated in simple broad masses, it is called plain and ugly—that is, unornamented. The grandeur of breadth and mass is the last thing that the public will admire, unless it be that equally fine quality of reticence. No doubt there is a winning grace in modesty, theoretically, but the Englishman likes to see a man push himself to the front, and he likes to see a self-assertive building, too. He calls it a "handsome structure."

This popular architectural taste is especially to be deplored, because it is answerable for the production of an ostentatious class of building which is vulgarising whole districts. And we must suppose that there are architects as insensible as their clients to modesty and refinement in design or else that they are content to sacrifice whatever principles they may have to captivate the popular taste.

Another popular fallacy is that the planning of buildings and the designing of them are two separate processes, and, further, that a building may be designed on paper. So it may be by the experienced man who is reading the perspective value into every part of his drawing. But this paper and T-square designing is, I fancy, one of the chief causes of architectural failure. The right treatment of building material is a matter about which the public has no ideas at all—in fact, does not even know that there may be a right and a wrong way of using material, still less that this is an important factor in judging the excellence of a building.

The effect of this widespread ignorance is not only that architects are deprived of the stimulus of cultivated public opinion and approbation, the public itself is a loser. For not being able to criticise its architects intelligently, and being, perhaps, conscious of the fact, it is at their mercy—and the tender mercies of an architect may be very cruel. Having revived Greek, Mediæval, Gothic, or some other more or less unsuitable style, the architect will tell his client what is at present the fashion, and what is the proper thing to have, and the client, with British long suffering, will pay heavily for being made miserable and uncomfortable until his lease or his life runs out.

But why should this public ignorance of architecture surprise us? From our youth up we have been taught music, and have studied English literature. We have also been taught English history—as being for the most part a series of sanguinary conflicts between England and France, with occasional civil wars at home; but no one has instructed us how to read for ourselves the history of our forefathers written in the stones of our village church. Is it not astonishing that the study of English architecture is not part of a school, or at least college curriculum? What better method could there be of teaching a boy to observe accurately, and reason from his facts. Even in the schools of art throughout the kingdom, we may find, perhaps, building construction taught, but the study of architectural history and design is conspicuous by its absence.

A man ought to be considered as lacking in the cultivation of an English gentleman if he did not possess more or less knowledge of English architecture at least.

Can this be remedied? If architects who have presumably studied the subject exerted themselves to further its claims by bringing it before public notice, by assisting in the appointment of architectural professorships and lecture-

ships, and the foundation of architectural scholarships, and by exciting an interest in their own neighbourhood in architecture, much might be done towards securing public recognition of the claims of architectural study. This, of course, would not necessarily mean a purification of architectural taste, but it would assuredly tend in that direction. It is vastly more important that our streets, wherein we walk every day, should be adorned with beautiful buildings, than that we should be able to listen to grand music for a few hours in the winter season. Yet we think much more of our concerts than of our street fronts.

One of the most important departments of municipal government nowadays is that which deals with the erection of new buildings. Never by any chance is an architect, whose experience might be invaluable to his town, found to offer his services on its Council. No; architects neglect their opportunities of advancing their art, and instructing public taste, and stand by and whimper.

Indifferent as the average Englishman may seem towards architecture, he is not so any longer when his interest has been excited. He really wishes to know what is good and what to admire, and if he is authoritatively told to do so he will admire it. But he must be taken in hand first; he will not take the initiative, and it is the architect from whom he has a right to expect this leading.

He is for the most part unimaginative and commercial. He worships a fact, especially if that fact is a bargain sealed to his own advantage. So when he builds he likes to see his money's worth. Refinement of proportion is a quality which eludes him. Ornament is tangible. Let him have plenty of it, and full flavoured, and he will be content: he will even praise his architect. But if beauty of proportion and grouping, breadth of mass, and contrast of light and shade, reticence, and all those other evidences of refined thought were pointed out to him, he is not so insensible but that he would learn to admire them. But who will point them out to him? Not architects; they are too busy with their private practice.

If this be the attitude of the public towards architecture, how does it regard the individual architect? Frankly, it cannot see the reason for his existence. It does not regard him as the practical man—that term refers to the builder. He is a luxury, and an expensive one, and his services may be dispensed with, especially in these days of municipal and rural inspection, when you can rely on the "authority" for seeing that your drains are right and walls dry.

People are quite ignorant of the *modus operandi* in designing and erecting a building. They think that when an architect has made a plan and designed an elevation, and obtained a builder's estimate, he has practically finished his work. They have no idea of the immense amount of detail work necessary, of the varied knowledge required, of the responsibility, anxiety, and labour entailed.

It comes as a surprise to most clients who have had no previous experience of building to see the number of drawings required, and to find the architect actually giving his attention to the most minute details.

If this knowledge were generally diffused it would save much misunderstanding. "Well," says a client, "I really had no idea you architects had to do so much work for your money. Why, I should not think the 5 per cent. pays, does it?" And you answer, "Well, perhaps not."

As it is, however, 5 per cent. commission is usually considered a high rate, and architects are frequently asked to take less. Not a few do so rather than lose work, even though they are men of established practice, and it becomes a difficult matter to obtain more than 5 per cent., even for the most elaborate church fittings or church decoration.

If a building is to be erected for a religious or charitable purpose, the architect is often asked to forego part of his commission on those grounds, and if he demurs he is reminded that a subscription towards the organ would be very acceptable. Perhaps it is desirable to have an imposing ceremony of foundation-stone laying because that stimulates the subscriptions, and the architect is asked to present a silver trowel. Later on, he may have to present a silver key for the opening ceremony. As a result, the architect whose practice lies not amongst the commercial, but amongst religious and charitable bodies, is subjected to a perpetual fine, while at the same time the work probably requires a larger amount of attention.

Not infrequently a committee will act with contemptible shabbiness towards its architect. In fact, a committee may sometimes prove a very good instance of individual morality and collective immorality. Happily, I have not suffered from these experiences myself, but I know I am fully justified in these remarks from the experiences of others.

On a committee there is usually at least one member who has already had some experience of building, and he assists in formulating the requirements of his colleagues, but the private client is often incapable of forming an idea of his own wants, and the architect has to find them out for him. This sometimes entails a number of alternative sketches, and then, perhaps, the client will decide not to build. He is astonished if his architect then sends in his bill. "Why," says he, "I did not approve of any of the sketches you made me." But he knows at the same time that sometimes his doctor's prescription has done him no good, but he has still payed for it, even if it has done him harm.

Many a patient architect will continue to lay one after another of his most exquisite ideas before unrefined and uneducated wealth to find them brusquely set aside, and will meekly endure with only a sigh for the ill association of beauty and the beast.

Another method by which a client realises his own wants at the expense of the architect is the private competition. This method is becoming alarmingly prevalent owing to the folly of architects in ministering to it. It appears to me a very mean way of getting £100's worth of brains and paying £10 for it. For undoubtedly the client, if he saw good points in the unsuccessful drawings, would not hesitate to incorporate them in his building. I wonder if painters will in time be asked to compete for painting portraits.

Public competitions, on the other hand, provided that a professional assessor is appointed, seem right and desirable. But the offer of a first premium is a delusion and a snare. Why, it always merges in the commission. The architect competes under the tacit understanding that if placed first by the assessor he will be employed to erect the building. It would not pay him to do the immense amount of work necessary in a competition for the paltry and wholly inadequate amount of the first premium. The competition drawings will not serve as the working drawings. All the work must be done over again and it is right that the architect should receive some compensation for his preliminary labours. There are others, however, to whom these labours have been just as great and who have not the consolation of carrying out the work. Should not these, too, receive compensation for their work in all cases wherein they have been personally invited to compete, and would it not be far more satisfactory to divide the amount offered in premiums, including, of course, the first premium in equal honorariums to all those who had been invited to compete, than the present system of prizes?

Further, would it not be to the interest of all, to limit the number of competitors in any competition and so avoid the enormous expenditure of labour and bad language which the Exeter Church Competition must have entailed. It is practically impossible for an assessor to select the best out of four hundred drawings unless one chances to be of conspicuous merit. No competition should have more than twenty competitors, and these should be taken in the order of their application or by some system of ballot. Those of them, however, who had been invited would, of course, receive precedence.

In the case of one of the competitors submitting a design of great excellence, but at the same time omitting to fulfil one or other of the conditions, it seems wrong towards the public and posterity that they should be deprived of a great or beautiful building on trivial or ephemeral grounds. The right course seems to be undoubtedly to erect such a building, but part of the commission payable to its architect might be deducted and paid over as compensation to the first of those competitors who had observed the conditions. In any case the latter should receive a substantial compensation, and any course of procedure which might be adopted by the committee in such a contingency should be clearly made known to the competitors from the first.

Now, while the public generally knows little of the extent and character of the architect's work, the attitude of the public towards the architect himself is, I believe, one of distrust. This is the underlying sentiment, the fundamental note, engendered both by prejudice, hearsay, and experience. We may be inclined to deny this, we certainly should wish to be able to do so. But is it not true? If it is true, what are the causes? There may be many, but I believe there are two chief ones, the distrust of the architect as included in the general distrust of the term "artistic," and the particular distrust of him on financial grounds. As a red rag to the Britisher is the very word "artistic," except as restricted to washed out colours and painted drain umbrella stands, to which his wife and daughters, instigated by the various ladies' journals, have accustomed him. To him it means faddism, want of common sense, the sacrifice of comfort to architecture, an unnecessary outlay of money without any compensating gain. It means a complex system of gables and gutters which are always needing repair. Sham half-timber work which warps off in the sun, small windows with a transome at the eye line, leaded glass so arranged that it distorts the outlook, ingle nooks with very uncomfortable straight backed seats. Ask the Britisher himself, and he will say that if he has to go to an architect at all he will go to a practical one, and not one of those "artistic chaps."

Now, architects have to blame themselves for this conception of the artistic. The Britisher has shrewd common sense, and his idea of a home is comfort; further, he has an idea that every building should be made as serviceable as possible for its purpose. He does not think it proper to make a building dark in order that its exterior should be in the style of Mediæval Gothic.

I am aware of the extreme excellence of much modern domestic work, and how possible these examples prove it to be to combine the greatest comfort with the artistic in its best and highest sense, but we must remember that the public judges from the rank and file of buildings and the rank and file of architects.

Undoubtedly most architects set themselves sincerely to interpret their client's wishes, but there are others—a minority—who seek their own reputation at their client's expense, practically compelling him against his will to accept a certain design or certain features of that design.

Now, if a private client consults an architect, and has definite wishes, it is the duty of the architect to respect those wishes if he feels they are wise and reasonable. If not, it is equally his duty to persuade his client against them, to, so to speak, save him from himself. This is especially the case in an uneducated man, or one who is possessed of some fad of which he will probably tire. If the architect acquiesces without protest, his client will turn upon him afterwards, and say: "It is true I wanted such and such, but I did not know much about the business, and I certainly did not foresee the effect of it. I came to consult you as a specialist, and I expected you to advise me. I was quite open to argument."

If he cannot persuade his client, then he must carry out his wishes, and make the best of the circumstances, for it seems only reasonable that if a man is going to pay for the work he should have it to suit him.

With public work the case is different. The committee stands for the public, and the individual opinion of any member ought not to override that of the architect, who, presumably, better understands the subject. The architect, it appears, convinced of the rightness of his view, should then maintain his position, not dogmatically defending it so much as winning his opponents to his own side by persuasion. The fact is, both a client and a committee will allow themselves to be persuaded by their architect if they put confidence in him.

A further question remains to be considered, one of the greatest importance—the public distrust of the architect on financial grounds.

It is often said that if you go to an architect to build you a house you never know when the expense will end.

The client lays his wants before his architect, and tells him how much he is prepared to spend. Usually the sum is quite inadequate. Of course the architect tells him so? Not at all. He tells him that it will need economy, and implies that the design which he submits, and which meets his client's approval, can be carried out for the sum named. All goes well until the builders' tenders are opened, and then comes the disillusionment of the client. The lowest tender is half as much again as the sum to be spent. The architect anticipated as much, but he trusted to his power to surmount the difficulty when the time came. This misleading of a client as to the cost is of most frequent occurrence. How much more

confidence a client would have in his architect one would think if the latter told him at once that it would be impossible to erect the building for the sum named. Not at all; he would doubt the architect's judgment, and say that Mr. So-and-So had built a house of similar size for less money, and eventually he would consult another architect, who was willing to mislead him. Every architect knows that if he is thus frank and straightforward with his client he runs the risk of losing him. Notwithstanding this, it is better, even as a matter of policy, and certainly as a matter of professional morality, to let the client know the worst. For you will in time obtain the rare distinction of being regarded as an architect whose estimate can be trusted, and that means in time a practice based on the most solid foundation.

A similar difficulty occurs in competitions. A fixed sum is stated, and competitors must design a building which can be carried out for that sum. Each competitor must give an estimate of cost. Some of them conscientiously endeavour to carry out the instructions in the spirit as well as in the letter. They have to somewhat cripple their design in consequence. Others make elaborate drawings of an equally elaborate building, and give every accommodation that could be desired. They arrive at the probable cost by dividing the sum allowed by the cubical contents of their building, and then, having found a constant—4½d. a foot, perhaps—they multiply this by the cubical contents and find to their satisfaction that it works out at exactly the sum they have to spend. This operation, if judiciously described in the report, is sufficient to throw the committee off its guard, and has even misled the professional assessor. In due time the builders' tenders are opened, and then comes this disillusionment of the committee, and the suppressed growls of the fellow competitors.

But if the public distrust the architect on account of the unreliability of his first estimate, how much is that distrust deepened when the bill of extras is presented.

Here, again, the architect has himself to blame. He cannot, perhaps, prevent extras altogether, but he can do much to spare his client from the extreme annoyance of an unexpectedly heavy bill.

The two most fertile sources of extras are the absence of a thorough thinking and working out of the scheme before the quantities are taken out, and the subsequent alterations made by the client himself. Every building ought to be worked out in half-inch detail, and an exact specification written by the architect himself, and not by the quantity surveyor, and then, and not before, the quantities should be taken out. And if a client is inclined to order extras he should be kept informed by the architect of how the bill is mounting up, and he will not then be taken by surprise at the total.

All this takes much trouble, and a client in his hurry to commence work grudges the time spent in making details. Besides, the work may fall through, and then a large proportion of the work will have been done in vain, although the architect will certainly be entitled to claim payment for it.

Notwithstanding these drawbacks, the reputation of being able to build without extras is so unique and so priceless to the architect that it is worth some trouble to win. It will increase his practice more than any misleading shifts, or engaging to do work for less than 5 per cent.

There remains but one more subject for consideration. The public has heard from time to time some talk of illicit commissions associated with the practice of architecture. There have even lately been discussions on the subject in the Press. There may, of course, be no truth in it but the public is naturally suspicious.

Now, while it cannot be doubted that the majority of architects, as upright and honourable men, would not stoop to receive indirect commissions, yet it is an equally undoubted fact that there are some who do. It is useless to disguise the fact, as it is too well known. The opportunity of increasing his income by the acceptance of those commissions is no temptation to the well-established architect. But all architects are not well-established; some have a struggle to make a living, and others are just starting in practice and have not thoroughly grasped the moral question involved. Very severe blame, therefore, rests with those manufacturers and others who offer these temptations, and it is the duty of every honourable architect to endeavour to attach a public stigma to the name of any such firm. In fact, a black list ought to be kept by each local association, and the members of that association should undertake to boycott all manufacturers and tradesmen whose names appear on such a list.

But it is not from tradesmen only that architects sometimes receive indirect payments. It is a practice far too prevalent for architects to share in the quantity surveyor's fees. It is not, indeed, to the credit of either architects or surveyors that the practice should exist at all. The architect employs a surveyor to take out quantities, and for this the surveyor charges certain fees, of which he pays the architect a certain proportion. What for? If the architect has properly worked out his plans and written his specification, both of which are supposed to be included in his own fees, it gives him no extra trouble to employ a quantity surveyor. The payment is as much an illicit commission as if it were paid by a tradesman, although a specious defence is sometimes advanced by those who receive it on the score of custom. It is not that the surveyor is paid less for his work; the extra charge comes indirectly out of the client's pocket.

It is the architect, as the client's agent, and not the client himself, who employs the surveyor, and the latter is, therefore, largely dependent on the architect for his work. The same may be said of the builder, as it is usually the architect who invites him to tender. The client meantime, who is entirely ignorant of the preliminary methods of procedure in building a house, is often left in the dark by the architect even of the very existence of the quantity surveyor, and as the latter is paid, not by the client, but by the builder, there is no very evident way by which a client should get to know of his existence, or that he had been indirectly paying him through the builder. Still less that he had even been paying the architect in turn through the quantity surveyor. The relationship of architect, quantity surveyor, and builder is a closed ring, and the client remains outside.

Now, while I would most carefully guard myself from implying the slightest motive of dishonourable practice in thus keeping the client ignorant, I do say that the present system of an architect, practically on his own initiative, employing a surveyor, and the latter receiving payment directly from the builder, so that the amount of that payment is hidden in the builder's charges, is one which might readily lend itself to the practice of dishonesty and fraud. I do not say that the fraud exists, but that when the means for it exist without the likelihood of discovery, there is a probability amounting to certainty that some one will sooner or later be found to avail himself of them.

The wise architect will explain everything to his client in the fullest detail at the very first. He will explain the functions of the surveyor, and mention the name of the one whom he proposes to ask. He will state his charges. He will also explain that if the building is not proceeded with the surveyor will none the less be entitled to his charges in full. And he will also consult his client as to the builders who should be asked to tender. And I think it would be wise if he arranged that the surveyor should be paid by his client direct. It may come to the same thing in the end, but in an evil world one must consider appearances.

It is only by the utmost frankness on the part of the architect, combined with loyalty and justice towards client and builder alike, and associated with the most assiduous care in sparing his client unexpected or excessive expense, that that distrust to which I have referred, and which undoubtedly does exist, can be removed. That is a consummation devoutly to be wished. It devolves upon each architect individually to assist in its realisation.

Mr. Osborne Smith, in proposing a vote of thanks, said he had a recollection of a previous paper which Mr. Bidlake had read to members of the Association, and the pleasure which he derived from listening to his previous address was equalled on this occasion. Mr. Bidlake had referred to certain defects, which he, the speaker, had been conscious of in the course of his practice and which he thought ought to be called attention to. He had been extremely interested in all that Mr. Bidlake had said, and he was prepared to endorse most of it. As to the difficulty that the average client had in realising the vast amount of thought that was required in the preparation of drawings, he took every opportunity to show clients how much work was required in the erection of a building. In his opinion every architect ought to do the same, so that clients might see the difference between the erection of a dwelling house, for instance, under the supervision of an architect, and in its erection by a speculative builder. He was very much surprised to hear Mr. Bidlake's remarks as to irregular financial relations between some architects and quantity surveyors. He did not think the remarks applied to first-rate or even second-rate surveyors in London, and it certainly was not the custom for quantity surveyors to pay architects any portion of what they received for taking out quantities; and as to the trouble an architect was put to in giving the surveyor the necessary information, if he prepared the drawings and specifications properly the necessity did not arise, but if he prepared the drawings with great haste, as many architects did, and to a small scale and with no specifications whatever, except a few notes, it was obviously necessary that the quantity surveyor would require information on innumerable points; and this would take up the architect's time, which ought to be spent in the client's interest in preparing the specifications and the details. He had heard some of the best builders complain a good deal about that; they also said that the sections were too frequently taken through the worst place—through the line of least resistance. He believed that in too many instances architects did not take the trouble to properly prepare working drawings for the use of the workmen. Many draughtsmen were now in the habit of making details without a plan, relying only on an elevation and section, which was an unintelligible method. A remedy for all that was entirely in the hands of architects, who must develop their ideas before the work was proceeded with, and they must not neglect the drawings in the hope that the work would come right in the end; no work ever did end satisfactorily unless proper control and attention was given to it. He particularly agreed with the lecturer that it was very necessary to be candid with the client and to make everything clear to him—to tell him, for instance, that the quantities were being taken out by a surveyor who would have to be paid. Many difficulties, and a lot of distrust, would disappear if the client were taken into the architect's confidence. It was quite evident that the distrust did exist, and candour would not only remove this, but it would have the effect of getting the client to think and act with his architect.

Mr. Banister F. Fletcher, in seconding the vote of thanks, said that he did not agree with the lecturer on many points. One of the lecturer's theories was that of the indifference of the British public to architecture—a theory which was very well worn—and in this connexion he had quoted the "Brompton Boilers." But what else could be expected from the public in regard to architecture? Architecture was one of the most difficult, and should be one of the most progressive arts, or sciences, or professions; it was a subject that required the lifetime of any man to learn the elements of, and yet there were people always crying out about the ignorance of the public in regard to it! Let them think of the ignorance of architects as to architecture, to see how much room there was for improvement there! In his opinion, the public were just as ignorant of medicine, law, or military tactics, or any specialised subject, as they were about architecture, and not much else could be expected. It was probably because the public did know a little about architecture, and because of the connexion of antiquaries with architecture, that there had been brought about so many revivals. If there had been no Parker and no parsons to read him, some progress might have been made by architects in evolving new forms and new ideas. As it was, such progress had been prevented by those who had merely a smattering of architectural knowledge. The same might almost be said of proportion; architects knew very little about it, and really they could not teach it. They could not tell people the right proportion of anything; the knowledge of it was innate, and the capability of producing proportion in any building was not to be taught by rule of thumb; it was simply found by experience and by the natural artistic qualifications which a man, assisted by long study, possessed. So that if they had to wait until the public valued buildings for the sake of their proportions, they would have to wait a very long time. Then, again, as to the right use of material, it seemed to him that that was the very last thing the public would learn about. A knowledge of construction, on which material was most firmly based, was a very difficult and laborious study, and architects could not expect the public who had had no training in a knowledge of building materials, to estimate the value of a building by the knowledge of whether the materials composing it were used in the right way

or not. It was an instance of a little knowledge being a dangerous thing with the public in regard to architecture. It was his firm conviction that the more the public knew up to a certain point about architecture, the worse it was for architecture, because the public only looked at the form produced, and they often unconsciously admired very bad forms. The five per cent. system seemed to have taken a firm hold of the public because they liked to understand what they were going to pay, and they would never care to be told that the sum depended upon the amount of work the architect did. Then as to extras, it was almost impossible to build without them, unless they had no end of provisions. As to the question of commission, that hardly came within the scope of the paper. The latter part of Mr. Bidlake's paper should have been entitled, "Architects and themselves." He agreed with the previous speaker, in thinking that what Mr. Bidlake had referred to in this connexion did not exist in London to anything like the extent that it appeared to do in the provinces.

Mr. Hampden W. Pratt, in supporting the vote of thanks, said he was not aware before that the practice of sharing commissions with surveyors was so general on the part of architects as Mr. Bidlake seemed to make out. In fact, he took leave to doubt whether it was so at all, at any rate, in London. It might exist to a very slight extent, and, in any case, he was opposed to it in every shape and form, and he did wish that architects would look at the matter conscientiously and honestly. Architects should not mix themselves up in this way with surveyors or builders, and if five per cent. was not a sufficiently large commission, the client was the man to go to. He, the speaker, had a little quarrel with architects for taking commission in another way, viz., in kind; and that was in compelling the surveyor to prepare the specification. Surely that was sharing the commission! It was putting work on the surveyor which the architect ought to do, and by thus getting some one else to perform it, the architect was getting work done without paying for it. In his opinion the architect should write the specification himself, and it was a very prevalent thing, he believed, for the quantity surveyor to write the specification. He was sorry that Mr. Bidlake had raised the question of commissions because, owing to the publicity which it would receive, it would be quite a revelation to the public of what was supposed to go on between architects, surveyors, and builders, and it would thus receive an importance which it did not deserve. The question might have been more appropriately discussed among architects themselves, but not in public, although generally he was not disposed to hush up matters of this kind. He was glad that Mr. Bidlake had pointed out some of the work which architects had to do, and of which clients had no idea, for he quite agreed that the client had no idea, as a rule, of the amount of work which the architect had to perform. Then another point was as to the question of competitions. Clients had an idea that when an architect had sent in his competition drawings he had prepared drawings which would be useful at subsequent stages of the work, and that those competition drawings could be used as working drawings. That was entirely incorrect, of course, but it was believed in. Then, as to private competition among architects. He believed that it was a fact that in the provinces more than in London, the practice was for clients to call on leading architects to send in designs, and, generally, he could see no objection to the practice. Mr. Bidlake had referred to the defects of architects in their practice, and it was to be hoped some of his remarks would be taken to heart. No doubt if architects put a little more business capacity into their professional work and ways it would be of considerable advantage to them and to the client. Unfortunately the public had some ground to mistrust architects in regard to estimates, and architects had themselves to blame for the trouble they got into sometimes for extras. He did not agree with Mr. Fletcher that extras were a necessity. He did not think that there were unavoidable extras, and if an architect carefully worked out his drawings, and thought out his specification, in nineteen cases out of twenty there would be no bill of extras. As to the commission question, he hoped that Mr. Bidlake would be able to modify his remarks as to "closed rings." He never heard of such a thing before, and he really could not believe that such a ring existed, and he was afraid that the idea would give a false impression generally as to the relations of architect, surveyor, and builder. He could not believe that such a thing existed either in London or the provinces, and at all events he hoped that Mr. Bidlake would believe that it did not exist in London.

Mr. E. W. Mountford, in supporting the vote of thanks to Mr. Bidlake for his interesting paper, said he also regretted that prominence had been given to matters which would have been better discussed in private. At the same time, he was sure that there existed nothing like a "ring" with which architects, surveyors, and builders had anything to do. Of course it was possible for both architects and builders to make arrangements, and for the builder by that means to make more than a legitimate profit; but it was the object of every honest architect to see that the builder did not make any undue profit. Of course the builder was entitled to a fair profit, and the ideas of builders differed as to what that profit should be. Some were content with ten per cent., while others thought it should be fifteen per cent; in his opinion anything from ten to fifteen per cent. was a fair profit for a builder. Anything above that the architect ought to be able to prevent; and if he did so, as all good architects would, there was an end to the "ring" at once. As to commissions he agreed with Mr. Pratt that no respectable architects did accept them. That commissions were offered by tradesmen and accepted by architects he was afraid was true to some extent—he said "afraid" because in his younger days he had commissions offered him. He was glad to say that they had not been offered to him in recent years, because he made it a rule wherever a commission was offered to terminate his relations with the firms who offered it. He did not think that the practice existed to anything like the extent that Mr. Bidlake imagined, though he believed that clients generally credited architects with accepting commissions. Either in the provinces or London he did not think that it was a matter of any custom now, whatever it had been formerly; and if any one would provide him with particulars he would undertake to bring the case before the Institute. They had heard a good deal that evening about the number of drawings architects had to make in designing a building. It was absolutely true that if the quantity surveyor was to do his work properly, architects must provide him with full details before the work commenced. Personally he did not attach the same importance to specifications as some people did. If they made full details of every part of the building, with plenty of notes upon drawings, any other specification would be unnecessary. He could not agree with Mr. Pratt that the architect was dividing the commission with the surveyor, by allowing the surveyor to prepare the specification. In actual work they would find that the specification was thought very little of as a rule, because the builder invariably took the quantities as the standard of what he was to supply. It was the quantities which would bind him and not the specification. It was true that the public were quite ignorant of architecture, but what else could be expected? It was also a fact that clients had very little idea of the large number of drawings that architects had to prepare in designing a building, and as to the general public regarding the architect as an artist, they never regarded him in that light at all.

Mr. H. B. Creswell said that Mr. Bidlake's remarks seemed to suggest that his bitter experience of the public arose from expecting too much from them. If he had taken a less exacting and a wider view of the public, he would have seen that the public was deserving of something besides condemnation.

The Chairman, in putting the vote of thanks to the meeting, said they would have to recognise the fact which would clear the ground of a large amount of difficulty—a fact which architects were very loth to recognise—viz., that they were never paid for design. The client never contemplated for a single moment that they would put sufficient time into their work to evolve a thoroughly satisfactory artistic design. The client did not understand that such a practice was implied, and he certainly would be very much surprised if they asked him to pay them for the time they spent on the design; and they had really to regard themselves as men of business—surveyors pure and simple—to prepare the necessary plans for the execution of the building. Under these circumstances the temptation to a young architect to fling artistic impulse and sincerity to the winds, and to merely prepare his plans, was very great indeed, and only those men who understood the unfortunate fact that an architect was a self-denying artistic philanthropist were able to do good work at all. Did the client care how many times the architect rubbed out his detail? What did he care for their particular intention of satisfying some definite ideal that they had been cultivating with care, and study, and practice? It did not matter to the client, though it mattered to them a very great deal; for they would sacrifice anything and everything—they would make the whole set of drawings over again if need be, in order to get one pet idea of their own (an idea that they had developed and cultivated and were enthusiastic about) embodied in stone and mortar; at the expense of some one else. A client did not know anything about that desire, and under those circumstances he did not think that they ought to ask him to pay for the exercise of their ideas. Had it ever occurred to them that they ought to pay a client for the opportunity he gave them of erecting in a public position their dreams of Gothic architecture, for instance? Recently he, the speaker, had overheard in a train a consation upon architects and architecture between two electrical engineers. One of them summed up the whole question in this way, viz., "The worst of architects is that they will expect other people to carry out their own ideas!" Clients paid architects to carry out their ideas, and architects took the opportunity of carrying out their own. This was a fact that architects were conscious of and would have to plead guilty to. There was no doubt that the amount of work demanded of the architect had increased very largely, and that the amount of work for the ordinary 5 per cent. remuneration was of a very onerous character, and in his opinion the architect has just cause for complaint. Since the practice of architects refraining from taking out the quantities, which had been established in London principally at the instigation of the Institute of Architects, and which could not be called an unreasonable practice in view of the relationship existing between the architect and the builder, the architect had been deprived of a very definite source of profit—a source of profit which, added to whatever profit there might be on the usual 5 per cent., made his practice a little more remunerative than it was at present. He could not help thinking that many of the difficulties under which architects laboured would disappear if the architect was able to take out the quantities as of yore, and as he still did in the provinces. He did not think that the client would run more risk of suffering injustice than he did at present, and the work would not be more expensive to the client, and would be more expeditiously carried out. He advised his hearers to take to heart all that had been said that evening as to slovenliness and uncertainty in drawings. Unless they cultivated the habit of thoroughness in preparing their working drawings, they would never do much good as architects or surveyors, or as artists. They must get to the bottom of their work and thoroughly understand it before they embarked upon an estimate. In preparing the quantities the surveyor was apt to measure very heavily in order to magnify his office—he expanded the bill of quantities into a large number of folios, to do which he measured labours up and he measured labours down, while the architect used to be able to get all that was necessary into a small number of folios. This was an absurd state of things which must sooner or later come to an end, and it seemed to him that the London architect ought to take out his own quantities again. In regard to architects taking commissions from quantity surveyors, he did not know any case that had ever come before him in London, though he had heard of cases in which this was done. The state of things which Mr. Bidlake had described could very well be discussed at a meeting of that kind, so that young architects could understand the view of the practice taken by honourable men. But one fact ought to be remembered in order that the ethics of the matter might be understood. When an architect took a commission from a tradesman when placing an order with him, that architect was prevented from exercising a *bonâ-fide* judgment on behalf of the client, but when the architect took from the quantity surveyor ½ per cent. or something of that sort, he did not see in what way the client suffered. He did not desire to defend the practice, but he wanted to know where the mischief existed. As to architects taking commissions from tradesmen, a large number of clients—commercial men principally—in London and elsewhere, did not regard it as a moral obliquity, or as in any sense improper; but, whatever they thought, it was wrong, and ought to be discouraged in every way. As to competitions, he thought that the adjudication of competitions as conducted at the present day was mischievous and very unsatisfactory, and that the payment of large fees to the assessors could be avoided. He

did not see why, in a large competition, the decision should not be left to the competitors themselves, who were the best qualified, by their study of the conditions and in preparing their designs, to be adjudicators; but failing that, he suggested that the Institute of Architects should offer, on behalf of the profession, to adjudicate in all competitions without charge, and solely in the interest of the profession. The honour which would fall to the Institute in so acting would soon make itself felt. Mr. Bidlake had given them good advice as to how they could succeed with their clients, viz., to be perfectly reliable in matters of estimate, and that meant that they were to be perfectly frank with themselves. He (the speaker) believed that an architect must succeed who made it his business to please his client and to satisfy him in his reasonable wishes. On the other hand, they must never do anything against their better judgment without protest, and remember not to apply that principle merely to ideal matters. A client was generally able, in the long run, to appreciate the architect's artistic work, and it must not be forgotten that the artistic question was less important to the man who had to live in a house than his own common-sense requirements.

The vote of thanks was then put to the meeting and carried unanimously.

Mr. Bidlake, in reply, said he had no wish to speak disrespectfully of the British public, for he was part of it himself. He rather pitied the public, because they had no architectural leaders. If the public was ignorant it was its misfortune, and not its fault. Mr. Fletcher had said that it was impossible to get the public to appreciate all those subtle questions of proportion, &c., which architects themselves found very difficult to understand. That he allowed, but the question was: Is the present state of knowledge of the British public a fixed quantity? If it were not then there was a possibility of that ignorance being lessened. That was the whole question. Why should not architects set about trying to lessen that ignorance by taking the public more into confidence, and pointing out what buildings were beautiful, and wherein they were beautiful? If the public generally had no power of appreciating or finding out for themselves beautiful proportion, still, if they were taught to believe that a certain building was beautiful and of fine proportions, and they became acquainted with its details, then a standard of taste was set for them; but at present there were many who had no standard of taste, and he thought that architects might do more to help in establishing such. With regard to the question of extras, he still maintained that an architect ought to be able, if he thoroughly worked out his drawings and studied the building in detail before the quantities were taken out, to avoid extras to a very large extent, although perhaps not altogether. He thought that the endeavour to see how a building was working out was to some extent a function of the architect's imagination. An architect ought to be able to picture his building and every part of it while he made the drawings. If he was incapable of doing this until the building was half finished, no doubt he would soon incur extras. As to the relations of quantity surveyor and architect, he adhered to his statement that the sharing of fees was practised possibly to a larger extent than was supposed. He did not mean by the expression "closed ring" to accuse either architects or surveyors of fraud, but he repeated that all the machinery for fraud was there, and it was that which he denounced.

The Chairman announced that the next meeting would be held on March 5, when a paper would be read by Dr. F. S. Granger on "Greek Sculpture and Greek Legend" with lantern illustrations.

The meeting then terminated.

THE COX THERMO-ELECTRIC GENERATOR.

AN account of this generator appeared in the *Electrical Engineer* of New York about two years ago, and although it attracted a good deal of attention at the time, yet very little further information regarding it has been given to the public. On Friday last week, on the invitation of Mr. Cox, we went down and inspected his laboratory and workshops at St. Albans, and saw his thermopile in all stages of its construction, and a large number of them in operation. Our experience with the Clamond and Noé thermopiles had made us sceptical as to the practical use of this class of apparatus, but what we saw convinced us that this generator is a very great improvement on the older types.

At present the Company confine themselves to the manufacture of a small generator suitable for a large variety of domestic purposes, and we shall confine ourselves to describing and discussing this apparatus, without following Mr. Cox into his interesting but sanguine speculations as to the future rivalry between his method of generating electricity and the ordinary dynamo and steam-engine method.

The great defect of the ordinary types of thermopiles met with in physical laboratories, is that the junctions oxidise and the cells soon deteriorate. In this thermopile the couples are made by casting, no soldering or brazing being used, and as copper and a graded alloy of antimony and zinc are the two metals, it is claimed that oxidation is completely prevented. The cell is formed by successive rings of these castings completely enclosed in a vitrified cement, which, after baking, is turned into a hard stone cylinder. A metallic annular chamber is cemented to the exterior, and water is kept trickling through this while the cell is in action. A plastic cement is applied to the interior and vitrified, and this is heated by means of a small gas jet, which plays on a series of deflectors, heating them uniformly. The reflected heat keeps the inner side of the cell, and, therefore, one set of junctions hot, the other set is kept cool by the water jacket.

These cells are made with voltages varying from two to ten, and the maximum power given out is about ten watts. They consume from two to four cubic feet of ordinary illuminating gas per hour. They are well finished, being, in appearance, small cylinders with old bronze sides and polished nickel rims. This is a simple and strong piece of mechanism, even a fortnight's immersion in a bucket of water doing it no harm. To start it all that it is necessary to do is to light the gas and to turn on the tap to let the water flow slowly through the jacket; in about ten minutes it attains its maximum activity, and can be left in continuous action for months, as it requires no attention. Short circuiting does it no harm, and in this respect it compares favourably with small accumulators. It is, of course, expensive, as compared with a primary battery, but there can be no question as to its convenience in many cases, provided that its average life is found to be several years.

The New York office of the Commercial Cable Company has operated its entire lines successfully with these generators, and for cable and telephone work it will prove a formidable rival to the motor generator.

The following are the cases where, in our opinion, it can be usefully applied, and for which it is worth considering as an alternative to the ordinary methods: for charging small accumulators, for working fan motors, electric bells in hotels and flats, and for X ray apparatus. The small accumulators, for instance, used for lighting bicycle and carriage lamps are ordinarily charged by primary batteries, which require continual attention, and any one who has kept his bicycle accumulator in good order for two or three years by this method will not grudge the expense of one of these generators.

Since writing the above we regret to learn that the laboratory and workshops of this company, containing many hundreds of these generators, were totally destroyed by fire last Tuesday morning. The cause of the fire is unknown. The general contents of the building were insured, but the destruction of all his valuable testing apparatus, and the records of the experiments he has made during the last ten years, must be a heavy blow to Mr. Cox, who has our sincerest sympathy.

BUILDERS' CLERKS' BENEVOLENT INSTITUTION.

THE thirtieth annual genera meeting of this Institution was held on the 23rd inst. at the offices, 21, New Bridge-street, E.C., the President-elect, Mr. Thomas Hall, occupying the chair, supported by the retiring President (Mr. B. E. Nightingale), the Treasurer (Mr. E. Brooks), and others.

The annual report stated that the income for the past year consisted of 213*l.* 3s. in subscriptions, 300*l.* 17s. in donations, 140*l.* 5s. in dividends, and 1*l.* 3s. interest on deposit, making a total of 655*l.* 8s. The amount expended was 483*l.* 10s. 5d., which included 390*l.* paid in pensions, and 10*l.* in temporary relief. One of the widows had re-married, thus resigning her pension. An election was held in December, at which James T. Gough, being the only candidate, was elected. The number of pensioners on the books is twenty. The total number who have been elected is forty-three. There are three children in the Orphan Working School, per presentation of the Builders' Clerks' Benevolent Institution. The eighteenth annual dinner was held on March 24, 1896, in the King's Hall, Holborn Restaurant, Mr. B. E. Nightingale in the chair. The Committee, in thanking the Chairman for his services, wished to express their great appreciation of his kindness in serving the Institution as President, and for his efforts in promoting its welfare. Mr. Thomas Hall (Messrs. Hall, Beddall, & Co.) had kindly consented to act as Mr. Nightingale's successor in the Presidential chair.

The President-elect (Mr. Hall) moved the adoption of the report, which was seconded by Mr. Nightingale and agreed to.

Mr. E. C. Roe, in proposing a vote of thanks to the outgoing President and other retiring officers, said that all present knew of the great advantage Mr. Nightingale's services had been to them. He had taken much interest in the Institution, and the result was known to all.

Mr. Newling seconded, and the resolution was carried unanimously.

Mr. Nightingale, in acknowledging the vote of thanks, said that the Institution would always have his good wishes.

On the motion of Mr. Oldham, seconded by Mr. Gammon, the officers for the present year were elected.

A vote of thanks, on the motion of Mr. Turpin, seconded by Mr. Brooks, was then passed to the Chairman, who replied, and the proceedings closed.

THE ARCHITECTURAL ASSOCIATION SPRING VISITS:

LONDON COUNTY COUNCIL WORKING-CLASS DWELLINGS, BOUNDARY-STREET.

ON Saturday, the 20th inst., the second Spring Visit of the Architectural Association was paid to the L.C.C. Dwellings, Boundary-street, Bethnal Green.

This being the most extensive scheme for housing the working classes yet carried out, the visit was of considerable interest. The area included is about fifteen acres, and it has been entirely cleared with the exception of a Board school and a church. The leading feature of the plan is a circular garden, 270 ft. in diameter, radiating from which are seven streets, 50 ft. wide. In order to save the expense of carting, all the earth removed from foundations has been placed in the garden, forming a mound some 20 ft. high, and crowned with a band-stand.

The blocks of dwellings have been planned so that the front and back face respectively east and west as far as possible, to ensure the largest amount of sunshine; this produces a curious effect, as the buildings in consequence are not at right-angles to the streets, and the method on plan appears to waste a considerable amount of space.

About half the total number of blocks have now been erected, and it is possible to judge of the general effect, which is decidedly spacious, and a considerable amount of money has been spent in ornamentation, bay windows, turrets, gables, and chimneys. The total number of persons displaced by the clearing of the site is 5,719, and the total number provided for is 4,700. The accommodation for these is divided into one, two, three, or four room tenements, chiefly either two or three rooms, in which families of four or six persons can be accommodated. Each tenement is a self-contained dwelling, approached from a wide passage or staircase, at least 3 ft. 6 in. in width. The living rooms have a floor measurement of 144 ft. super, clear of all obstructions; the bedrooms about 96 ft. super. The floors have a height of 8 ft. 6 in. in the clear; a small scullery is entered from the living room, and the larger tenements have a water-closet provided, with a lobby: the smaller ones are approached from the staircase. No provision is made for dust, which is to be carried away in iron pails by the parochial authorities. The blocks have been planned to ensure in every case through ventilation, that is, every tenement has either two outer walls or one outer wall and one wall on passage opening directly to the outer air. The blocks are five stories in height, and are separated from the next block by a distance equal to the height. The construction is as far as possible of fire-resisting materials, the floors being composed of breeze concrete and iron joists, and the partitions of breeze concrete, and all stairs and landings are of concrete. It is proposed to construct the roofs of future blocks also with breeze concrete, on which will be nailed the battens and slates—an interesting experiment. The whole of

the walls to ground floors are faced with salt-glazed bricks, the greater original expense being compensated by the durability, and the upper parts chiefly in red bricks with stone dressings. Workshops for cabinetmakers and other trades have been erected at the back of the main blocks, and a public laundry has been provided, this having been found more economical than supplying a separate copper to each tenement.

The total estimated cost of the scheme is 300,000*l.*, and it is calculated that this will be extinguished by means of a sinking fund at the end of fifty-four years. The average rent per room per week is 2*s.* 6*d.*

The party was conducted over the building by Mr. Owen Fleming and other members of the Architect's Department of the L.C.C., who kindly gave many interesting particulars as to the various details of the scheme.

ARCHITECTURAL SOCIETIES.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—"An Architectural Student's Rambles between Wakefield, Doncaster, and Selby," was the subject of a paper read by Mr. R. A. Easdale, at a meeting of the Leeds Architectural Society, held on the 15th inst. at the Institute of Science, Art, and Literature. Mr. Easdale said he thought that architectural students did not sufficiently study the places they visited; they preferred rather to obtain a hurried view of many places. Yorkshire was second to no county in England in its wealth of ancient buildings. Its village churches were full of interest. Students, he believed, would find it more profitable to study the designs of parish churches, pulpits, and small villa-residences, than to devote their time sketching cathedrals and town halls, which were structures rarely required. Proceeding to the subject of his paper, Mr. Easdale touched on various specimens of bygone architecture to be found in the neighbourhood of Wakefield, Pontefract, Methley, Kirkthorpe, Oulton, Kippax, and Selby. The lecture was illustrated by a collection of sketches and photographs.

DEVON AND EXETER ARCHITECTURAL SOCIETY.—"Screens: their Symbolism and Treatment," was the subject of a lecture by Mr. G. H. Fellowes Prynne to the members of the local branch of the Devon and Exeter Architectural Society, at the Plymouth School of Art, Princess-square, on the 18th inst. After giving a historical sketch of the origin and development of screens, the lecturer explained their symbolical meaning, and commented upon the fact that in English churches the screens were found in nine divisions, each symbolical; while on the Continent they were usually in three divisions. In no country in the world were there so many churches with rood screens as in England, and for beauty of detail and workmanship the English screens were hardly to be surpassed. He dealt at some length with the different methods of treatment adopted in the construction and decoration of screens, and remarked that while in many English churches were found beautiful examples in both wood and stone, the modern metal screens were for the most part a lamentable failure. The lecture was profusely illustrated by views of English and Continental church screens, shown by means of the oxy-hydrogen light. At the close a cordial vote of thanks was, on the invitation of Mr. Shires, seconded by Mr. Bazeley, passed to Mr. Prynne for his address.

GLASGOW SCHOOL OF ART.—A lecture on "The Architecture of Asiatic Hellas," one of a series on Greek architecture, was delivered last week by Mr. W. J. Anderson, director of the Architectural Department, to a large audience of students of the Glasgow School of Art. After a brief survey of the geography of the coasts peopled by the expatriated Ionians and Æolians, and the histoty of Asia Minor in its relation to the arts, the lecturer proceeded to trace the growth of the "Archaic" Greek style in that region, by whose traditions the settlers and their artistic expression were largely moulded. The influence of Phrygia, *e.g.*, in its cult of a great Mother, Cybele, through whom all descent was traced, appeared to have determined that most of the great Ionian temples were dedicated to goddesses, and the Ionic style as a whole represents what may be called the feminine side of Greek art. In the severe Doric and the lighter Ionic styles, they had the happiest symbol of the two great elements of the Greek race, whose rivalry made the history of Greece, and who seemed to have been complementary one to the other. The plan of the *templum in antis* was foreshadowed in the *megaron* of the palaces of Troy and Tiryns, and before 550 B.C. its peripteral form was settled and its structural evolution complete, the talents of succeeding architects being directed only to its modification by refinements in detail and sculpture. Examples of the Archaic style were supplied in early votive columns, and among others by the earlier temple of Diana at Ephesus, of which there are fragments in the British Museum; while the great temple of Paul's time, built in the fourth century B.C., was shown as now restored by Dr. A. S. Murray, and the famous sculptured columns and pedestals as they have been arranged under his directions. In conclusion, a series of restorations of another wonder of the ancient world, the Mausoleum of Halicarnassus, was shown by lantern, including that of Professor Cockerell (published in the *Builder* of August 29, 1896), and the more recent one of Mr. J. J. Stevenson, as set forth in our issues for September, 1895, which appeared better to satisfy the requirements of Pliny's description with the actual remains now arranged in the Mausoleum room of the British Museum.

ARCHÆOLOGICAL SOCIETIES.

THE NATIONAL TRUST FOR PLACES OF HISTORIC INTEREST OR NATURAL BEAUTY.—A meeting of the executive Committee of the National Trust was held at No. 1, Great College-street, Westminster, on the 17th inst., Sir Robert Hunter in the chair. It was determined to take steps to initiate a regional survey of the country, and, by means of local correspondents, initiate the compilation of a catalogue of buildings, objects, and places of historic and archæological interest, with a view to their proper protection and preservation. A report by the Treasurer showed that the work of repairing and making sound the old clergy-house at Alfriston (which has recently been acquired by the Trust) had had to be suspended on account of lack of funds; a sum of 200*l.* is still needed to put this interesting edifice into a proper state of repair. It was announced that the purchase of Barras Head, situated opposite Tintagel Castle in Cornwall (which has been recently acquired by the Trust), was now complete. This fine headland, comprising four acres of down, is now, therefore, in the hands of the Trust, the property of the nation for ever. The Secretary was able to report that the circular issued by the Trust, in conjunction with three other societies, suggesting the acquisition by Local Authorities throughout the country of a piece of land or place of historic interest or natural beauty as a "Victoria open space," in commemoration of the Queen's long reign, had aroused wide-spread and sympathetic interest. Finally, the Committee were unanimous in agreeing to resist as strongly as possible the Hastings Harbour District Railway Bill, on the ground of the serious interference, to which it will give rise, with the most charming features of natural beauty in the district.

SOCIETY OF ANTIQUARIES.—At the ordinary meeting of this Society on the 18th inst., Sir Henry Howorth, M.P., V.P., in the chair, Sir A. Wollaston Franks, President, exhibited a beautifully wrought silver-gilt *nef* of Swiss workmanship, of a date *circa* 1520. Sir H. Howorth exhibited a curious contemporary portrait on vellum of George Clifford, Earl of Cumberland, in his capacity as Champion to Queen Elizabeth, an office conferred upon him in 1590. Rev. E. B. Savage communicated a note on some ancient burial customs, in which he suggested an explanation of the existence side by side in barrows of cremated and inhumed remains. The former, he thought, might represent those who had died in troublous times, and whose bodies had been burnt to preserve them from mutilation or indignity. The latter were probably the remains of those who had died in more settled or peaceful times. Mr. G. Grazebrook read a paper on "Mediæval Surnames and their Various Spellings."

BRITISH ARCHÆOLOGICAL ASSOCIATION.—The sixth meeting of the session was held at the rooms in Sackville-street, Piccadilly, on Wednesday, February 17th, Mr. C. H. Compton, Vice-President, in the chair. A paper, entitled "London under the Monastic Orders," was read by Miss Edith Bradley, illustrated by maps of the City, indicating in different colours the sites of the many religious houses which existed, both within and without the walls, between the thirteenth and sixteenth centuries. Miss Bradley noticed in detail many of the houses, arranging them in groups under the orders to which they belonged, thus, the Benedictines, the Cistercians, the Carthusians, the Augustine Canons; and the orders of friars were each in turn described, and the circumstances of the foundations of the several houses were related. The Cistercians apparently possessed but one abbey in London, that of St. Mary Grace's on Tower-hill, founded by Edward III. in 1339. He called it "Eastminster," in contradistinction to Westminster. It was surrendered in 1539, and was valued at 602*l.* 11*s.* 6*d.*, according to Speed. The site it occupied is now covered with victualling and biscuit bakeries for the Royal Navy. Not a trace or fragment of its walls remains. The paper conveyed a good impression of the power and influence wielded by the religious orders in London, and showed what a large share they must have had in the making of the history of the City in the mediæval centuries. In the discussion which ensued, Mr. Blashill, hon. treasurer, spoke of the value of the ordnance maps in identifying the sites of religious houses and in other ways enabling us to illustrate the life of the old city. Mr. Patrick, hon. secretary, pointed out that, although the great fire destroyed the majority of the churches of old London, yet much of the walls must have remained standing, and their foundations, of course, were untouched, and in that connexion it is interesting to know, on the authority of Mr. Geo. H. Birch, that the present church of Christ Church, Newgate-street, is built upon the actual foundation-walls of the eastern portion of the Old Church of the Grey Friars Monastery, the nave of which extended considerably further to the west, covering the site of the present burial-ground.

COMPETITIONS.

BOROUGH OF SUNDERLAND WORKMEN'S DWELLINGS.—We are asked to mention that the designs under mottoes "Esperanza" and "Invicta" have not been returned for want of addresses. Will the authors kindly communicate with the Borough Engineer, Town Hall, Sunderland.

SUTHERLAND INSTITUTE, LONGTON.—A public competition of designs for this Institute has just been decided by Mr. W. Gilbee Scott, as assessor, in favour of Messrs. Wood & Hutchings, of Tunstall and Burslem, whose design, "Knowledge," was placed first, and their design, "Compact," was placed second, thus carrying off the two premiums of 75*l.* and 25*l.* The building will provide a public library, and technical schools of science and art, manual training and cookery. On the 7th of last month, the foundation stone was laid by the Prince of Wales, although the plans at that time had not been adopted. The estimated cost is 8,000*l.*

NORTH BRIDGE-STREET IMPROVEMENT, EDINBURGH.—At a meeting on the 17th inst. of the Lord Provost's Committee of Edinburgh Town Council, the report of a sub-committee on the North Bridge-street reconstruction was considered. The sub-committee recommended that the plans for the reconstruction of the buildings on both sides of the street, submitted by Messrs. Scott & Williamson, architects, whose designs were adjudged first in the competition, should be adopted with such modifications as the Council might think necessary. Failing satisfactory offers from outside parties to undertake the work in whole or in part at their own risk, the sub-committee were of opinion that the reconstruction should be executed by the Corporation itself. The Lord Provost's committee approved of this report, and agreed to ask a remit to instruct the preparation of working plans for the corner blocks meantime, and to obtain estimates. —*Edinburgh Evening Dispatch.*

TECHNICAL COLLEGE, SUNDERLAND.—At a recent meeting of the Sunderland Town Council, the Technical Education Committee reported that as to the competitive designs for the Technical College, the President of the Royal Institute of British Architects had nominated Mr. J. McLean Brydon, of London, as assessor, and the committee recommended his appointment accordingly. On the motion of Mr. W. M. Roche the report was adopted.

POLICE STATION, HALIFAX.—On the 10th inst. the Watch Committee of the Halifax Corporation held a special meeting with regard to plans for the new police station, court-house, &c. After a long discussion it was decided that competitive plans for a new building should be invited, that two premiums of 50*l.* and 25*l.* respectively should be offered, and that the successful plans should be compared as to cost, &c., with the adaptation plans submitted by the Borough Engineer (Mr. E. R. S. Escott), and if favourable that the premiated competitive plans should be

adopted. There was a divergence of opinion on the Committee as to whether the competition should be limited to the Borough architects, but ultimately it was resolved, by 8 votes to 4, that the competition should be an open one.

Enlargement of Corn Exchange, Spalding.—The Spalding Urban District Council, at a recent special meeting, accepted plans for the enlargement of the Spalding Corn Exchange and Poultry Market, at an estimated cost of £2,000. Eight architects sent in competitive plans, and those of Mr. Corby, architect, of Stamford, were accepted.

THE AUCTIONEERS' INSTITUTE.

A paper, affecting the interests of mortgagors and mortgagees of real property, buildings, and the appurtenances technically known as "fixtures," was read on Tuesday last at a meeting of the Auctioneers' Institute, 57, Chancery-lane, over which Mr. J. F. Field, President of the Institute, presided. The lecturer, Mr. J. Hepper (Leeds), dealt mainly with claims arising out of mortgages, and the illustrations given chiefly related to woollen and worsted mills, iron and engineering works, warehouses, public-houses, and dwelling-houses in cases in which the lecturer had been engaged as arbitrator or umpire in the North Midlands. The disputes with regard to "fixtures" were few between landlord and tenant or vendor and vendee, but numerous between mortgagee and mortgagor, or the trade trustee of the latter, and as the simplest forms of conveyancing gave rise to the widest claims, the lecturer mainly confined his remarks and illustrations to mortgages of that kind. In laying down certain preliminary definitions the term "land" was extended to mean buildings attached thereto, and "fixture" as something which, when unattached, might be a mere "chattel," but when either actually attached by bolt, screw, nail, or other visible method of annexation, or only attached to the realty by a construction of law, must pass "with the land." Of the latter class were locks and keys, windows and doors serving to a house, as well as engines and boilers, shafting and transmitting machinery, and steam, gas, and water pipes, for workshop or factory. Even belting must pass with the freehold, as well as, under most circumstances, the machine to which it was attached, unless the belt was cut, which the mortgagor had not always the right to do. Some interesting illustrations were given of looms of a light description, such as run in worsted mills, having to be given up to the mortgagee, while heavier looms, such as run in woollen mills, which could be worked without being permanently fixed to the walls or floor, could be removed by the mortgagor or his trustee. One of the most interesting illustrations given was of a travelling overhead railway, such as are common in engineering works, timber and stone yards, and known as a "Goliath." The lecturer was of opinion that all "travellers" driven from pulleys, or revolving square iron rods connected with the motive power, should pass with the freehold, and his practice was to claim them for the mortgagee, but in several cases which he had carried before a legal umpire, the decisions were adverse. Although the beams were fixed to piers of brick, forming part of the walls of the building, or upon massive wood uprights let firmly into the ground and stayed by props, the "traveller" was held to be a chattel standing in the same relation to the fixed frame, works, and rails, that a railway engine does to the railway. Disputes with regard to fixtures in dwelling houses had been less numerous than in factories, but the practice of an important firm of solicitors was referred to, which claimed for the mortgagee chimney glasses screwed to walls, window cornices of every kind, sideboards screwed to walls, brackets, valances—everything, in fact (except carpets) that was in any way attached to the freehold. The sounder principle appeared to him to be to regard as belonging to the fee whatever was measured or fitted to the walls or made so as to fit into one harmonious design, but to regard as chattels, glasses, girandoles, or other furnishings, put up to harmonise with the furniture of a room, but forming no part of the original structure or decorative design of a house. In hotels and also in shops and warehouses fixed articles might lose their chattel character more readily than in private houses, because there was a closer relation between certain classes of fixed articles and the freehold in the former than in the latter, the use of the article in relation to the purpose to which the owner was applying the premises being the leading principle in deciding whether in one case a fixture was "part of the land," and in another a chattel. In the valuation of fixtures the lecturer found too much laxity. Valuers should become more accurately acquainted with the law than they often were, in order to guard their clients from the serious difficulties in which he had sometimes known them placed.

A discussion followed the reading of the paper, Dr. Hart proposing a vote of thanks, which was supported by Mr. W. R. Peck (Messrs. Hampton & Sons), Mr. Johnson, Mr. Harper, and the President. All the speakers concurred in setting the highest value on the paper, but Dr. Hart questioned the invariable application of a principle laid down in the paper, that a fixture under a mortgage was constituted by the qualifications, limitations, or definitions in the mortgage deed. He cited a case in which a gas-engine hired from the engineers was adjudged to pass with the freehold in spite of these limitations, because it was held to be sufficiently fixed "to pass with the land." Mr. Peck said the practice in the north was not the practice in London, so far as regarded cornices, gasaliers, and fixtures of that kind. Mr. Hepper replied to the criticisms offered. The vote of thanks was cordially given, and a vote of thanks was accorded, in conclusion, to the President.

Illustrations.

DRAWINGS OF ROUEN AND COUTANCES CATHEDRAL.

THESE two views, which formed a portion of the illustrations to Professor Aitchison's Royal Academy Lectures on Architecture, are from drawings by the late W. W. Deane.

That of Rouen shows the south porch with its sculptured arch springing between two buttresses, of late thirteenth century date, with a clumsy looking doorway of comparatively modern date inserted beneath the mediæval arch.

The other drawing illustrates a portion of the nave and the central tower of Coutances, an earlier building than Rouen, and belonging entirely to the first half of the thirteenth century.

The octagon lantern in the centre of the composition was doubtless intended to have a spire, though it may be questioned whether the tower itself would have been improved by that addition, for which it seems too tall and slight in design; though the general effect of the whole cathedral, with its two western spires, might have been better balanced thereby.

CHURCH AT PALLERA, ITALY.

We give this elevation of a recently-erected Italian church as an example of the style of modern Gothic which obtains in Italy at the present time.

Pallera is a small country village two hours' walk from Turin, near Moncalieri. The church, of recent construction, is built in the Piedmontese Gothic style, with red bricks and artificial stone, and ornamented with coloured pottery. The interior is decorated in polychromy, and on its walls Professor Gaidano is painting illustrations of the Stations of the Cross. The altar is made of marble, and the tabernacle will be enriched with precious stones.

Signor G. Gallo is the architect; the illustration is from an elevation specially prepared for us by Signor Frizzoni.

THE ALMSHOUSE CHAPEL AT HADLEIGH, SUFFOLK.

Dr. William Pykenham, Archdeacon of Suffolk and Rector of Hadleigh, made his will on the 6th day of April, 1497, and after enumerating certain charges for life, &c., made on his property, he proceeds to enumerate more particularly the items of which it consists and where the lands and tenements were situated, and then names who shall be "seized & possessed in the same Lands and Tenements," amongst whom, "the Parson & Wardens of the Parish of Hadleg (Hadleigh) yearly for evermore, shall be ex-officio members, and shall well and completely repair, sustain, and maintain, as well all the said Land & Tenements, as also the xii. Tenements and the Appurtenances lately by me the aforesaid William Pykenham of new edifyed and builded for xii. Alms Houses, sit and being in the Town of Hadleg abovesaid, and lay out the remainder yearly for ever to and among the xxiv. poor persons Almsmen and Women now being & which for the time shall in the xii. Tenements or Almhouses abovesaid towards the Exhibition. Finding and Sustentation of the same xxiv. poor persons, Men & Women, that is to wit to every of the same poor persons men and women like much in eschewing of warrants and stryffes."

These almhouses were taken down and rebuilt some few years ago, as they had fallen into a bad state of repair. The chapel was, however, left standing, although it was in a very dilapidated condition, and in 1891 it was repaired as shown in the illustration. A date (1498) was found cut upon one of the roof timbers. It appears also that there was a screen, for there are grooves and mortices in the eastern tie-beam, and the remains of the sill were found under the paving. A brick wall had been built at the west end to support the chapel, the timber framing shows that this was necessary. This was left standing. The roof had to be stripped and the brickwork taken out from between the timbers. Decayed portions were cut away and pieced with new wood, a new oak cill was inserted on the north side, the whole framing strengthened with iron ties, bolts, straps, &c. Some new rafters were inserted to replace decayed old ones, the roof boarded and felted, and the old tiles replaced. The old bricks were carefully replaced and the plaster repaired. The window-frames were quite rotten, so it was necessary to put new ones, and these have been put in regardless of the slope of the old timbers, quite upright. Such new work as was necessary was of the simplest description, and no attempt was made to copy the old work. The pulpit and two old benches, it is believed by the people of Hadleigh, were brought from the church, and it is said that the pulpit is the one used by Dr. Rowland Taylor, the martyr for conscience' sake in the reign of Queen Mary.

Dr. Pykenham also willed that the alms men and women said certain offices every day in the chapel, and that the bell be tolled every "forenoon at eight of the clock and in the afternoon at four of the clock by one of the said poor men" to call them to the chapel.

Dr. Pykenham also built the Rectory towers and gate, and probably the Archdeacon's house and the Pykenham Gateway in Northgate-street, Ipswich, where he resided for some years. He was appointed in 1472 to the Rectory of Hadleigh and he died in 1497. C. Spooner.

DRAWINGS FOR THE ROYAL ACADEMY.

As before, we shall be glad to take charge of and deliver at the Royal Academy any drawings sent to us in time to be photographed before the day of delivery, with a view to subsequent publication in this journal and in the "*Builder* Album of Royal Academy architecture."

We cannot accept any drawings sent to this office later than Saturday morning March 27, before 12 noon.

Architects sending drawings are asked to give special attention to the following requirements of the Royal Academy:—

1. All frames must be gilt.

2. Every drawing must have a label on the back, giving legibly the title and the artist's name and address.

3. Every drawing must have a similar label attached to the frame by a card so as to hang over in front.

4. Every drawing must be accompanied by a letter addressed to the Secretary of the Royal Academy, and signed by the artist, containing the artist's name and address, and the title or titles of the drawings sent. If more than one drawing is sent they must be distinguished by numbers, and the corresponding number must be repeated in the labels fixed to each drawing.

N.B.—We cannot undertake to supply or affix labels when omitted by the carelessness of the sender.

Artisans', Labourers', and General Dwellings Company.—According to the thirtieth annual report, the work of the year has been the pressing forward of operations at Leigham Court Estate. At Shaftesbury Park, Battersea, two houses have been repurchased during the year. The estate at Noel-park, Wood Green, is now fully let. At Leigham-court, Streatham, 157 houses and 152 maisonnettes are let and occupied; besides these fifty houses and 154 maisonnettes are structurally complete, and will be ready for occupation during the year. It is intended during 1897 to build additional houses and maisonnettes, so as to finish Amesbury-avenue and the roads on the right of it from Streatham Hill to Mount Nod-road. Nineteen shops are structurally complete, five of which are let and occupied. The Local Authorities have arranged with the railway company for the widening of the bridge over the railway at the southern end of the shops. When this improvement of the road and footway is carried out it is expected that additional shop tenancies will be arranged.

THE ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.

A METROPOLITAN District Meeting of the Members of the Association of Municipal and County Engineers was held at the Institution of Civil Engineers, Westminster, on Friday evening, the 19th inst. Mr. F. J. C. May, C.E., Brighton, President, occupied the chair, and there were present, Messrs. W. Weaver, Kensington; J. P. Barber, Islington; W. N. Blair, St. Pancras; P. Dodd, Wandsworth; G. Livingstone, St. George's, Hanover-square; W. Low, Hampstead; C. Mason, St. Martin's-in-the-Fields; J. P. Norrington, Lambeth; N. Scorgie, Rotherhithe; J. A. P. Waddington, Whitechapel; G. R. W. Wheeler, Westminster; T. Cole, Westminster, Secretary, and others.

Mr. G. R. W. Wheeler, of Westminster, was unanimously re-elected honorary Secretary for the Metropolitan District.

Mr. W. Weaver, C.E., Surveyor to the Kensington Vestry, presented a paper on London House Drainage as affected by the draft by-laws framed by the London County Council, December, 1896. Mr. Weaver said that in June, 1893, certain by-laws regulating the construction of water-closets, soil-pipes, &c., were framed by the London County Council under the Public Health (London) Act, 1891, and the Council had recently formulated draft by-laws under Section 202 of the 18th and 19th Vic., cap. 120, dealing with other portions of the drain and adjuncts not dealt with by the by-laws, and partially repealing them. From 1855, for a period of thirty-eight years, the central authority, although possessing the power —which they were repeatedly urged to exercise— neglected to formulate any by-laws for regulating the construction of house-drains, &c., and it was left with the various Local Sanitary Authorities to frame their own regulations under similar powers conferred upon them by Sections 75 and 76 of the Act of 1855. The regulations made by the forty different Local Sanitary Authorities of the metropolis varied more or less in different districts and it had long been felt that comprehensive by-laws should be framed for adjusting the work throughout the metropolis on lines of uniformity. Whether he was correct or not in his interpretation of the law there could be no doubt that the tenor of the statutes indicated the wish of the Legislature that the Local Authority should have full voice in formulating the rules governing the work which it (and not the Central Authority) had to supervise in execution; and in adopting the imperious course which they had followed, virtually ignoring the Local Authorities, the London County Council had treated with contempt the evident intention of the statutes and the feelings of the Local Authorities, the majority of whom he believed were desirous that the by-laws should not be approved until the Local Sanitary Authorities throughout London had had full opportunity of considering the same and formulating amendments thereon. It was essential that the drains and sanitary fittings of a house should be executed in a sound and substantial manner, but in striving for that end the question of cost should be borne in mind. To some persons expense was no object, but to many others increased rent arising out of increased cost of building was a matter of moment, and nothing, therefore, should be made compulsory but what was necessary. Unless the by-laws were made somewhat elastic and a certain amount of latitude as to their enforcement was left to the Local Authority cases of hardship would arise. In dealing with different classes of buildings and with different soils, variation in the work was desirable and should be permissible; it was not necessary to enforce the same standard of work in a 20*l.* a year house as in a 1,000*l.* a year mansion; huge blocks of flats and business premises could hardly be dealt with on the same sanitary lines as small detached or semi-detached cottages. Variation in soil also varied the requirements of the work. Mr. Weaver then proceeded to deal with the various by-laws as drafted by the London County Council. With reference to By-law 2 as to rain-water pipes, he expressed the opinion that it should be amended so as to allow at the discretion of the Local Authority the connexion with rain-water pipes of wastes from baths, lavatories, and sinks other than slop-sinks. Dealing with By-law 3, Mr. Weaver said that if the drain was constructed for the purpose of conveying sewage, it must not be less than 4 in. internal diameter. Four-inch drains might in many cases be laid with advantage, but in every instance the size of the drain should be governed by the area of the building to be drained, and the quantity of drainage which would have to be conveyed. As regarded fall, the present rules varied considerably in different districts, but he was of opinion that in all new buildings the level of the basement-floor should be such as to permit of a minimum fall of 1 in 48. By-law 4 did not describe what was a suitable trap; must an interceptor be fixed, or would a flap-trap meet the by-law? These points required careful consideration and settlement, especially as By-law 7 insisted on "efficient siphon traps in other positions." Intercepting traps were a modern introduction, and had many drawbacks; they hindered the flow, were a frequent cause of stoppage, and in many cases gave off from themselves more offensive smell than they intercept from the sewer. The complaints as to smells from sewer ventilators in road surfaces increased year by year in proportion to the number of intercepting traps fixed on house drains. He was of opinion that the question of intercepted or non-intercepted drains was the most important point requiring settlement, and the London County Council should face the difficulty, and determine, with the assent of the Local Government Board, whether or not every new or reconstructed drain was to be intercepted in its way to the sewer. If the determination was in the affirmative, then a very large outlay in the future would have to be incurred by the ratepayers for exceptional methods of dealing with the confined sewer air, unless ventilating pipes on the sewer sides of interceptors or other effective methods were adopted. The whole of By-law 6, referring to the ventilation of drains, appeared to be confused and unsatisfactory, and he was of opinion that it should be made clear on the following points:—(*a*) Size and material for ventilating pipes; (*b*) whether mica flap inlets may be used; (*c*) distance from windows and position of ventilating pipe so as to make same "a safe outlet for foul air;" (*d*) position of air inlet where there is no forecourt or open area. By-law 7, which provided for "no inlets to drains within buildings," could not be observed in many cases, more especially in existing buildings. There were houses without open areas either central or at the rear, and in new buildings used for trade purposes gulleys were frequently required in the basement for washing-down purposes. The Local Authority must be allowed to exercise discretion in enforcing this by-law. In the present By-laws of the London County Council it was imperative as regards new buildings to place the soil-pipe outside such building. The new by-law proposed that a soil-pipe fixed in connexion with a new building or an existing building should, wherever practicable, be placed outside such building. This was an important alteration as regarded new buildings. As to By-law 9, which deals with the ventilation of trap of water-closet, he was of opinion that the requirements as to anti-siphonage pipes were excessive and beyond what was necessary. By-law 13 was very important, as it made the by-laws applicable, so far as practicable, to existing buildings. It might in many cases be practicable to apply the by-laws to existing buildings, but only at considerable extra expense, owing to the construction of the existing premises. A person reconstructing a drain would be forced, irrespective of cost, to carry the drain, if practicable, outside the building, and other instances would occur where this by-law, if rigidly enforced, would press with great severity on property-owners. He pointed out that the following subjects were not dealt with by the draft by-laws, viz.:—(*a*) diminishing or taper pipes; (*b*) drainage from urinals; (*c*) removal of old drains, or the filling in of same, and the removal of contaminated adjacent earth; (*d*) drainage plan to accompany notice of commencement of work. In conclusion, he desired to accentuate the opinion previously expressed that, subject to a general code of by-laws on the subject of drain construction, the matter should be left with the Local Sanitary Authority, who must be allowed discretion in enforcing and interpreting the by-laws. It was a scandal and reproach to local self-government that at the present time any person carrying out drainage work in any part of the metropolis could appeal to the London County Council as to the method of making a joint between pipes, or as to the form of a closet pan; and he had been occasionally amused whilst attending on business at the County Hall, Spring-gardens, by observing persons with closet-pans, patiently waiting their turn to explain the merits of the same to a committee of the Council, who, it must not be forgotten, were not vested with any power of supervising the construction of drains, but had themselves, when executing drain work in any district of London, to carry out such work under the direction and to the satisfaction of the Local Sanitary Authority of such district.

Mr. W. Nisbet Blair (St. Pancras) said these by-laws were eminently needed in London, and he thought they were all in agreement that there should be a complete code for the whole of London. In addition to the by-laws which they had before them, there were statutory regulations which he had suggested to, and which had been adopted by, his Vestry, to be placed as prefatory clauses to the by-laws. The first addition would be to give the notice required under Section 76 of the Metropolis Management Act. Every builder should be compelled to give seven days' notice, and such notice should be accompanied by a plan of the alterations proposed.

Mr. Low (Hampstead) agreed with Mr. Blair as to the necessity for plans, but he said there was a Bill before the House now—the Sewers and Drainage Bill—by which powers were sought to obtain the deposit of plans with the Sanitary Authority. They ought to avoid the suggestion in the letter of the County Council, that any suggested alterations will be further considered on the occasion of a future revision of the by-laws. That was what they wanted to avoid. They did not want any future revision; otherwise they would never get any finality. They wanted to urge upon the County Council to get the by-laws complete.

Mr. Mason (St. Martin's-in-the-Fields) thought there ought to be some provision made for revising these by-laws every four years.

Mr. T. W. E. Higgins (Chelsea) agreed with Mr. Mason that by-laws required revision every few years. He was of opinion that nothing should be made compulsory unless necessary. The proposal for a 4 in. pipe was with the idea of killing the 6 in. They tried to do it by specifying for the shaft to be the same as the drain, because no man would think of putting a 6 in. or 9 in. pipe up the side of his house.

Mr. J. P. Norrington, Lambeth, said he did not think the letter from the County Council was such as should be sent to the vestries of London. As to the by-laws themselves, notwithstanding the "careful consideration," he was not very much impressed with them. They seemed to be based on the model by-laws of the Local Government Board, and whoever drafted them did not seem to have the practical experience of the construction of drainage which many gentlemen in that room possessed. He thought the result would have been more happy if the County Council had given longer notice of their intention to make the by-laws, and had consulted surveyors of experience on the subject. The regulations of the Fulham Vestry provided for notice being given and plans deposited of drainage work. Reference had been made to clause twelve of the London County Council's Sewerage and Drainage Bill. He had considered that clause, and was advising his vestry that it did not go quite far enough. The clause was intended to provide for the deposit of plans, but he did not know whether it would cover the deposit of plans for the reconstruction of drains. He had always been pressing his vestry for that power, and he was advising his vestry to ask the County Council for it.

On the proposition of Mr. Cooper, Wimbledon, a Committee, consisting of Messrs. W. Weaver, Kensington, J. P. Barber, Islington, C. Mason, St. Martin's-in-the-Fields, G. R. Norrish, St. Saviour's, Southwark, and G. R. W. Wheeler, Westminster, was appointed to consider the by-laws, together with the paper of Mr. Weaver, and reports from other metropolitan surveyors, with power to act for the Association.

Mr. Weaver, in replying to the discussion, expressed the opinion that the surveyors who had to supervise the work, ought to draw up the rules for supervising that work.

On the proposition of Mr. Norrington, seconded by Mr. Low, a hearty vote of thanks was accorded to Mr. Weaver for his paper.

Hard Wood Pavements.

Mr. R. W. Richards, C.E., City Surveyor of Sydney, New South Wales, then read a paper on hard wood pavement in Sydney. He said that as the result of seventeen years' experience, he had come to the conclusion that a carriage-way pavement laid upon a good foundation of concrete with New South Wales' hard woods, with slape or butt joints, with convexity of 1 in 60 or 80, properly cleansed and maintained, was the best and most suitable form of pavement for heavy and continuous traffic; and that the best timbers for such work were tallow wood, black butt, blue gum, red gum, and mahogany. These timbers, after having been laid in Sydney

streets, had, upon examination, shown wear at the rate of from $\frac{1}{60}$ to $\frac{1}{80}$ in. per annum, and had not required repairs of any kind whatever. The cost of the first wide-jointed pavement, including all labour, materials, &c., was about 27s. per yard super, while recently pavements with the close joints in Sydney cost 15s. 6d. per yard.

The President, in inviting discussion upon the paper, remarked that it was of very great importance, particularly to metropolitan authorities.

Mr. McBriar, Lincoln, said he would like to have some information as to the comparative slipperiness and noiselessness of these New South Wales hard woods, and also some explanation as to why they had not taken in the English market like karri and jarrah. The convexity of the roads in Sydney was less than the London practice.

Mr. C. Mason, St. Martin's-in-the-Fields, said that the greatest difficulty he and other metropolitan surveyors had with Australian hard woods was that their expansion and contraction was an unknown quantity. He had found one sample would expand enormously, another would contract. He could not get from the importers information as to whether the wood was seasoned in the same way as Norwegian and other timbers, and whether it was cut in any particular season of the year. He was very favourable to hard wood, more so than he was twelve months ago.

Mr. Norrington, Lambeth, asked as to the comparative methods of tallow wood, black butt, and ironbar, and said he wished to know whether, if large orders were given for these woods, they were in such abundance that the orders could be satisfied with reasonable rapidly.

Mr. Stainton, New South Wales, expressed the opinion that of all the woods which come from Australia, those of New South Wales were infinitely preferable. Given close-jointed pavements with the woods he had seen they had the most economical and satisfactory wood pavement.

Mr. W. Weaver, Kensington, said his experience of hard wood pavement was not of sufficient duration to lay down any firm conviction upon the matter. He should like to get hold of a good hard wood pavement which would not present the objectionable features apparent in the hard wood pavements in London, and if all Mr. Richards had said as to black butt could be borne out in London, the sooner they laid down trial lengths the better it would be for the metropolis.

Mr. Nisbet Blair, St. Pancras, said he believed that black butt and tallow wood would give them as good a pavement as karri and jarrah. Of course, a comparison of the results in Sydney and in London depended entirely upon the traffic standard in the streets. He doubted very much that the streets in Sydney, where these blocks were laid, had to sustain such a traffic as they had in some of their streets. In Euston-road, for instance, which received the traffic of three London termini—the London and North-Western, the Midland, and the Great Northern—a very large number of omnibuses, approximately 300 'buses an hour, brought very severe wearing effect upon these woods. Blocks laid under traffic for three years showed an average annual wear of about $\frac{1}{16}$ of an inch.

Mr. Waddington, Whitechapel, said he visited Sydney nine years ago, and he was very much impressed with the paving of the roads.

The President, in submitting the vote of thanks to the meeting, expressed his personal thanks to Mr. Richards for the paper.

Mr. Richards, in reply, satisfactorily answered the questions put by the members. He remarked that the pavement was as noiseless as asphalte, and that slipperiness was dealt with by free sanding. The traffic in some of the streets of Sydney was very heavy. The woods named had not been pushed on the English market, but could be obtained in large quantities. He affirmed that the hard woods of New South Wales would be found the most economical and satisfactory that could be used for pavements.

The meeting then terminated.

PROPOSED CIRCULAR RAILWAY, ABERDEEN.—The Great North of Scotland Railway Company have given statutory notice to include in their Running Powers to Inverness Bill the proposed circular railway through the suburbs of Aberdeen. The branch—3 miles 1 furlong 156 yards in length will extend from near Kittybrewster Station on the main line to Oldmill Reformatory, where it will joint the proposed railway to Skene and Echt. The steepest gradient is 1 in 15. There will be a tunnel at Clifton-road, where the excavation will be 52 ft. deep.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Sir Arthur Arnold, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee, it was agreed to lend the Battersea Vestry 2,745*l.* for carrying out improvement works at Vicarage-road and York-road, and for making a footpath at Clapham Common; the Shoreditch Vestry 24,800*l.* and 17,000*l.* for electric lighting works; and 18,830*l.* for paving and sewer works; the St. George's (Southwark) Vestry 550*l.* for paving works; and the St. Marylebone Guardians 40,440*l.* for the erection of a new administrative block at the workhouse.

The Works Department Inquiry.—Mr. T. W. Williams asked whether it was true, as reported in the Press, that Mr. Holloway, the late manager of the Works Department, had written offering to give evidence before the Committee of Inquiry on the conditions that his solicitor should be allowed to be present, and that an indemnity was given him against any further proceedings. The public, he thought, would not be satisfied if Mr. Holloway were not called, and he should like to know whether it was possible for the Committee to reconsider their decision not to call him, if it was true they had arrived at such a decision.

The Chairman replied that Mr. Williams had been misinformed as to the reasons why Mr. Holloway had not been called. There had been a good deal of correspondence, from which it would be seen that the terms upon which Mr. Holloway was willing to give evidence were that he should be allowed through counsel to cross-examine witnesses on his behalf. The Committee were unable to accede to that request, but they had never objected to Mr. Holloway's solicitor appearing. The Chairman added that the report of the Special Committee would be out within a month.

Buildings of Historic and Architectural Interest.—The General Purposes Committee brought up the following report:—

"The Council on January 21, 1896, passed the following resolution:—'That the following addition be made to the order of reference of the General Purposes Committee:—"To consider and report in the case of the contemplated destruction of any building of historic or architectural interest what course of action the Council should adopt."' We now report for the information of the Council the steps we have taken with a view to giving effect to the above-mentioned resolution. In the first place it seemed to us essential that a list, as complete as possible, should be obtained of all buildings of historic or architectural interest in London, and we appointed a Sub-Committee to deal with the matter. With a view to obtaining the necessary particulars for such a list, a communication was addressed to certain institutes and societies, several of which expressed their willingness to assist the Council. Subsequently it was decided that the best means of arriving at a satisfactory and expeditious mode of procedure would be to hold a conference with the various institutes and societies who had been asked to kindly assist the Council in the matter, and, with our concurrence, the Sub-Committee convened a conference, which took place at the County Hall on December 4 last. Representatives from the following societies attended, viz., Architectural Association; British Archæological Association; City Church Preservation Society; Committee for the Survey and Registration of the Old Memorials of Greater London; Kent Archæological Society; Kyrle Society; London and Middlesex Archæological Society; London Typographical Society; National Trust for Places of Historic or Natural Beauty; Royal Archæological Institute; Royal Institute of British Architects; Society of Antiquaries; Society of Arts; Society for the Protection of Ancient Buildings; and Surveyors' Institution. After an interesting discussion, in the course of which the representatives of the various societies expressed their gratification at the Council taking action in the matter, and the hope that the interest shown by the Council would stimulate greater public interest in ancient buildings, Sir Robert Hunter, representing the National Trust for Places of Historic or Natural Beauty, stated that the members of different societies had had a preliminary conference, and were all of opinion that some register or list of buildings, interesting by virtue of their antiquity or architectural beauty and associations, should be compiled. In support of this it was contended that at the present time there was considerable ignorance as to what London possessed in the way of buildings of interest, and that frequently it was only realised that a building was of historic interest when that building was in danger of being removed. The Trinity almshouses were cited as an instance. A list or register would, it was thought, remove in a great measure the risk of losing such buildings. The Committee for the Survey and Registration of the Old and Interesting Memorials of Greater London having already commenced to prepare such a register, it was thought that good purpose would be served if that Committee were to continue its work in connection with the preparation of the register. The resolutions passed at the conference were as follows:—(1) That it is desirable that a register or list be made of buildings of historic or architectural interest in London; and that the register be in such a form as to admit of amplification, both as to buildings and detail of buildings, according as future information comes to hand. (2) That it is desirable to form a general committee, to include representatives of the different societies interested in the matter, and that the Council be requested to appoint representatives on such committee. (3) That the existing Committee for the Survey and Registration of the Old Memorials of Greater London, having already made a register of buildings in the east end of London, be requested to continue its work; and that it is desirable that similar registers be compiled for the rest of London, it being understood that such registers are formed for the use of the London County Council. (4) That the General Purposes Committee be requested to consider the desirableness of the register being printed from time to time by the Council with suitable drawings and illustrations. We have since the conference considered the resolutions, and are of opinion that they should be adopted. The preparation and printing from time to time of the register will necessarily involve some expenditure, and when we have further considered the matter in this respect we propose to bring up definite recommendations based on the resolutions above quoted. It has been suggested that members of the Council generally might be willing and desirous to assist in the collection of particulars for a register of the nature suggested, and we have accordingly given directions for a circular letter to be addressed to members asking them, if they have information or suggestions to offer with regard to any buildings of historic or architectural interest in the districts they respectively represent, to be good enough to forward such information or suggestions to the Clerk of the Council."

Workmen's Trains.—On the recommendation of the Housing of the Working Classes Committee, the Council resolved—

That the special maintenance estimate of 60*l.* submitted by the Finance Committee for the cost of making inquiries as to the adequacy of the facilities provided by the railway companies for working men residing in South London be approved, and that the statistical officer be authorised to engage for the period till March 31, the services of four temporary assistants, at 2*l.* 2s. a week each, for that purpose.

Highgate Archway.—The Bridges Committee reported that they had had before them several designs for the reconstruction of Highgate Archway and had selected one (design "D") for a single arch bridge, 120 ft. span, with steel ribs. The work was estimated to cost 28,100*l.* Tenders for the work are to be invited from contractors.

Technical Education.—The Technical Education Board recommended the Council to vote the sum of 150,000*l.* from the beer and spirit dues for the purposes of technical education for the ensuing year. This is 30,000*l.* more than was voted last year.

Dr. Cooper moved an amendment to reduce the grant by 29,175*l.*, being the amount to be expended on the county scholarships. He complained that the polytechnics were kept idle during the day, and were crammed with artisans in the evening who were too tired to receive the education provided. If the scholarships were to be of benefit they should be given for study during the whole day.

The amendment was seconded by Alderman N. W. Hubbard, but was rejected, and the recommendation of the Board was subsequently agreed to.

Contractor's Work in Rosebery-avenue.—The Improvements Committee reported that they had received a letter from the Clerkenwell Vestry in regard to the repairing of the carriageway of Rosebery-avenue between St. John-street-road and Farringdon-road. Twice last year the Council informed the Vestry that they had no power either to call upon the contractor to repair the roadway or to reimburse the Vestry the cost of this work, which is nearly 3,000*l.* The Committee therefore recommended that they should inform the Vestry that the Council, having taken counsel's opinion on the matter, is advised that it has no power to assist the Vestry in connexion with the repairing of the carriageway.

Mr. Burns said that he had never seen such bad work as had been put into the road. The roadway ought to have lasted four years longer. The contractor who had done the work had become bankrupt because he had underbid everybody else.

Mr. Spokes moved that the recommendation should be referred back to Committee.

Mr. Banning seconded the amendment.

On a show of hands the voting was equal and a division was taken, with the result that 51 votes were given for the amendment and 55 against. The recommendation of the Committee was subsequently agreed to.

Construction of New Fire Brigade Appliances.—The report of the Fire Brigade Committee contained the following paragraph, the recommendation being agreed to:—

"The Chief Officer has suggested that the form of some of the appliances used by the brigade can be considerably improved, and he has submitted to us designs of the kind of apparatus which he proposes should be adopted. The Chief Officer wishes the Council to have the benefit of the improvements, and, in order that the Council may not be prejudiced by the Chief Officer's ideas becoming known, we have instructed him to obtain provisional protection for the apparatus, which for obvious reasons we do not describe. Judging from the designs, it appears to us that the suggested machines possess several advantages over those now in use, but it will, of course, not be practicable to come to a definite conclusion until the apparatus has actually been constructed and tested. With that view we suggest that the Chief Officer should be authorised to expend a sum not exceeding 200*l.* in making specimens of the appliances, and that he should be authorised to select the persons to be employed to do parts of the work. We think it desirable that some of the apparatus should be made in the brigade workshops, and that tradesmen should be employed to do what cannot be executed there. Such of the expenditure as will be incurred before March 31 next is covered by this year's estimate, and the balance will be provided for in next year's estimate. We accordingly recommend—That the Council do authorise an expenditure not exceeding 200*l.* in respect of the construction under the Chief Officer's direction of fire appliances of new design, and that it be referred to the General Purposes Committee to consider and report as to the course to be followed in this and similar cases."

Proposed Widening, Watling-street. — The Improvements Committee recommended that the City Commissioners of Sewers be informed that the Council does not feel justified in contributing any part of the cost of the suggested widening of the road at Nos. 16, 17, and 17½, Watling-street.

After some discussion this was agreed to.

The Works Department.—The Parks Committee recommended the erection of sanitary conveniences at Hilly Fields, at an estimated cost of 650*l.*, by the Works Department.

Mr. Corbett moved an amendment that the work should be done by a contractor.

Upon a division the amendment was defeated by fifty-two to thirty-eight votes, and the Committee's recommendation was then agreed to.

After transacting other business, the Council adjourned soon after seven o'clock.

THE COUNTY COUNCIL INQUIRY.

THE inquiry into the organisation of the Works Department of the London County Council was resumed on the 17th inst. at Spring Gardens, Sir Arthur Arnold again presiding.

The first witness examined was Mr. W. B. Fulwood, formerly an employé of the Works Department, who had written a letter to Mr. E. White containing allegations with regard to irregularities in the accounts, and with regard to the borrowing of money from an employé by a County Councillor. All endeavours to make the witness divulge the names of either of the parties to the latter transaction failed, but it was elicited that both the lender and the borrower were still connected with the County Council, and that the amount borrowed was 200*l.* With regard to the irregularities in the books, some of which were handed up for inspection, the witness indicated entries where amounts had been charged as foremen's wages where no foreman was employed, and where the witness himself had charge of the job. He did not suggest that anybody had put money into his pocket, but such items as one of 1*l.* 4*s.* 5*d.*, charged as wages of a foreman who was not employed on the job, ought not to have been entered. Because he had insisted upon drawing attention to these irregularities, he had been compelled to relinquish his post.

The next witness called, Mr. Steadman, Secretary of the Bargebuilders' Union, said, in reply to Sir Arthur Arnold, that, in his judgment, no honest employer of labour had any reason to fear the wages clause. He was in favour of a selected list for tenders, because it was less likely to lead to jobbery than open tendering. He was opposed to either reducing or abolishing the Works Committee.

In reply to Sir Godfrey Lushington, the witness said he did not claim to have more knowledge than other people, but he flattered himself that, as a mechanic, he knew a good piece of work when he saw it. He was satisfied generally with the character of the work done by the Council, and some of it, he thought, was a credit both to the manager and the workmen. Questioned with regard to the shop-stewards, he said there were none in his trade. He was not a builder, and he could not say what were the customs of the building trade.

In reply to Dr. Longstaff, Mr. Beachcroft, and Mr. Fletcher, the witness said that he had been Vice-Chairman of the Works Committee since March, but, except during a temporary absence of the Chairman, Mr. Ward, his duties had been only the same as those of any other member of the Committee; he had accepted the office of Vice-Chairman when there was a difficulty in getting any other member of the Committee to accept it. He thought the position was something of a figure-head; he had practically nothing to do, and he should not again take the office. He was not in favour of the Department tendering with contractors, but he would like to see it one of the largest employers of labour in London. With regard to possible improvements in the system of the Department, he said he thought the Committee should be composed only of men who wished to make it a success, that the manager should stay more in his office, and should have three or four responsible men under him to superintend the work done outside. The late manager had tried to do too much. He thought no manager should be entrusted with the purchase of materials.

In reply to Mr. Gruning, the witness said he did not think it would be a good thing for men on the promise of constant employment to accept less than the regulation wages.

Mr. Gruning: You would rather be out of work?—A good mechanic can always get employment.

Mr. Binnie, the Engineer to the Council, was recalled for the purpose of giving information with regard to the Hackney and Holloway storm-sewer, and other jobs as to which allegations had been made. Speaking generally, the witness said the work done by the Department had been of high quality, and it had been very successful. To build up a large contracting business was not usually a matter of a few years. Great firms, like several he named, had required three generations to mature. He considered that the Council had done wonders during its comparatively short existence. The witness subsequently added, in replying to Sir Godfrey Lushington, that he referred to the work of the Department as a whole, but that the success had been greater in engineering than in architectural work.

The inquiry was then adjourned till Friday, the 19th inst., when the first witness called was Mr. W. J. Livingstone, who, as it now appeared, was the official referred to by a previous witness (Mr. Fulwood) as the lender of £200 to a Councillor (Mr. J. W. Benn). The witness having replied to a number of questions, Sir Arthur Arnold declared that the explanation given by the witness was clear and satisfactory, that the transaction was a legitimate one, and one that the witness was entitled to make, and that no discredit attached either to the witness, Mr. Benn, or the Council.

The Architect of the County Council, Mr. Blashill, was now recalled to be examined upon a supplementary statement which he had obtained permission to put in, in contradiction of statements made by Mr. Alderman Taylor and Mr. Ward.

Among the leading points referred to in the supplementary statement was the allegation that at least 5 per cent. might have been saved upon the actual cost of work done by the Department but for the existence of friction between the Works Committee and the Architect's department. There was no foundation for that suggestion. The best feeling had always existed between the executive officers of the departments, and disagreement about items made no important difference. When at one time the late manager suspected some little friction, witness had sent a memorandum to his staff laying down the principles on which, as brother officers, they should conduct business with the officers of other departments. As regards the settlement of accounts, added the supplementary statement, the four independent quantity surveyors employed by the Council have all complained that they could not satisfy the demands of the Works Department.

In every case where the manager had appealed, he had been allowed for anything that had been overlooked by inadvertence, and the quantity surveyors had demanded and received extra payment for trouble given by the Department in settling up the accounts. Nothing of this kind had happened with any contractor. In the supplementary statement Mr. Blashill repudiates entirely the explanation given by Mr. Ward of the drainage work done at Scotland Yard, and gives a flat contradiction to the numerous statements of Mr. Ward and Alderman Taylor that no allowances were made at the end of a job for work said to be done under additional orders.

"These gentlemen," says Mr. Blashill, "have been misled, and there is no foundation for such statements. In every case the work actually done is ascertained, and everything that is in excess of the original order is allowed for. I have even reviewed my original estimate and raised it where I thought it was insufficient. The result of these processes was the *corrected estimate*."

Mr. Blashill reiterates the assertion that inspection of the prime cost invoices was persistently refused for weeks, and adds that although on many of the accounts the Department had received allowances of 10 or 15 per cent. from the manufacturer, yet the full price of the invoice was charged as prime cost, while an additional claim of 12½ per cent. was made, and therefore the department intended to make a profit of 25 or 30 per cent. upon those items. That was not what the Council intended. The statement dealt with the "exposure" of bad plumbing and drainage, and referred to the "exhibition" of defective appliances. "Most of these defects," says Mr. Blashill, "were actually discovered and exposed by my officers. Nearly all the specimens were taken out of old buildings before any of my clerks of works came to Spring Gardens; some are dated twenty-five years back, and some were taken out of old buildings bought by the Metropolitan Board of Works."

Examined by Mr. Beachcroft upon this supplementary statement, the witness said that he had no means of knowing whether there would be a loss or not upon works not yet completed, but he believed they were now going on better. With regard to the purchase of materials, he had formed an opinion, gathered from the testimony of others, that the Council's system of purchase of timber by auction was not a success. If he (the witness) were asked to make the purchases he should require some supervision, so that his transactions should be examined so as to prevent their being questioned. He had always understood that there was the greatest possible danger of commissions being given in respect of the purchase of materials, and there was more than a possibility of heavy commissions getting into the hands of the buyers. The Royal Institute of British Architects had long been considering the means of checking the practice.

Mr. Beachcroft; How long will it be necessary to wait to ascertain the success of the Department?—When the present buidings are completed a good means will be afforded of judging.—We shall not have to wait a generation?—No. Do you think it would be safe for the Council to leave the Works Department to make its own estimates?—It would be safe, but not satisfactory from a financial point of view.

In subsequent examination by Mr. Davies, Mr. Fletcher, and other members of the Committee, the witness emphatically contradicted the evidence of Mr. Taylor with regard to several jobs. His evidence, with regard to work done at the Embankment-gardens, Chelsea, and Pimlico shrubberies, appeared to the witness inexplicable. Mr. Taylor said thirty-five new kerbstones that were specified had not been put in, that not a single ounce of sulphur had been used where sulphur had been prescribed, that the ornamental fence was not taken up, and that the painting was badly done. But the kerbstones had not been specified, and everything required to be done had been done, and very well done. The jobs had been carried out under Mr. Sexby, the Superintendent of the Parks Department, and he (Mr. Blashill) had seen them all for himself.

In reply to Mr. Gruning, the witness rebutted a charge made by Mr. Burns as to the use of soft Worlaby stone, instead of hard Mansfield, at Brompton; Mr. Burns's informants were simply mistaken. The soft stone was for another job altogether, and none of it was used at all on the job indicated. He endorsed the statement of Alderman Taylor as to the good quality of the work at the New Cross Fire Station, but it was rubbed work, which was not necessary, and it was more costly.

Mr. Sexby, the superintendent of the Parks Department, who was next called, gave Dr. Collins a list of jobs done under his superinten-

dence, amounting in the aggregate to 168,305*l.* as estimated, and 161,402*l.* in actual cost. The quality of the Council's work was better than contractors' work. The estimates were all prepared in his department. His work differed entirely from building work, which involved a much greater amount of detail. In his department the principle of the direct employment of labour had given rise to no dissatisfaction and no labour disputes. He had 700 men employed, of whom 300 were labourers.

It was expected that this would be the last evidence taken, but at the last moment Mr. Ward, Chairman of the Works Committee, asked permission to put in a statement replying to the charge of withholding all knowledge of the regulation mentioned by Mr. E. White from the members of his Committee. The statement was allowed to be put in, but as it will involve cross-examination, the inquiry was again adjourned, Wednesday, the 24th inst., being fixed for the purpose.

ENGINEERING SOCIETIES.

THE INSTITUTION OF CIVIL ENGINEERS.—At the ordinary meeting of this Institution, on the 23rd inst., Mr. John Wolfe Barry, C.B., F.R.S., the President, in the chair, two communications on "The Main Drainage of London," by Messrs. W. Santo Crimp and J. E. Worth, MM. Inst. C.E., and on "The Purification of the Thames," by Mr. W. J. Dibdin, were read. In the first paper were described in detail the works carried out in London for the purpose of intercepting the sewage, which formerly passed directly into the river, and conveying it to outfall works at Barking and Crossness, about fourteen miles below London Bridge. The works, designed by the late Sir J. W. Bazalgette, and carried out by him for the late Metropolitan Board of Works, comprised the construction of about 110 miles of intercepting and storm-relief sewers, the former having a final discharging capacity of about 540,000,000 gallons per day, about 2·7 times the present dry weather flow. There were two main pumping-stations on each side of the river, with machinery of an aggregate of 3,000 horse-power, capable of pumping 500,000,000 gallons per day, and a like number of storm-water pumping-stations, capable of pumping directly into the river 150,000,000 gallons per day. The latter were used for preventing flooding in the lower parts of the Metropolis, when a heavy fall of rain occurred at or about the time of high water, when the storm outlets were closed by the tidal water. The works undertaken by the London County Council to improve the pumping machinery by compounding the steam engines at the principal pumping stations were also described. The outfall works for the purification of the sewage, the dry-weather flow of which now exceeded 200,000,000 gallons per day, were next dealt with. They consisted of settling tanks and their accessories for the chemical treatment of the sewage, and the means for removing the sludge produced to the German Ocean. The tanks at Barking contained 20,000,000 gallons, whilst those at Crossness contained 31,000,000. The sludge, amounting to 2,169,000 tons in 1895, was discharged into the open sea at a distance of about fifty miles from the works by a fleet of six steamers, each having a carrying capacity of 1,000 tons. The experimental filters for dealing with the effluent, and capable of effecting a purification of 78 per cent., were mentioned. The question of flood discharges from an area fully built over was referred to, and the details relating to an area of 160 acres were given; it appeared that the flow had reached a rate equal to two-fifths of an inch per hour. The bearing of this question upon the "Separate" system was next referred to, and it was stated that, so far as London was concerned, the system was impracticable. Nine hundred and twenty men were employed in the continuous disposal of the sewage, which amounted to 75,000,000,000 gallons per annum, the working expenses in 1895 being 104,000*l.* or about 5½d. per head per annum. The works now disposed of the sewage from a population of 4½ millions. The results had been the interception from the Thames of vast quantities of filth, which formerly rendered it offensive, and the conversion of the river into a relatively pure estuary. In the second paper the author described first the steps that had been taken in accordance with the scheme adopted by the late Metropolitan Board of Works for the treatment of the London sewage at the outfalls at Barking Creek and Crossness; secondly, the effect of that work in freeing the river from the raw sewage; and thirdly, the best method of effecting still further improvement. On arrival at the Northern Outfall Works the sewage was screened to remove all large particles, such as rags, &c. After receiving the proper quantity of lime the sewage passed the iron-water station, where the solution of iron sulphate was added. The iron salt was dissolved in a tank of water heated by a steam coil, and the concentrated solution was sufficiently diluted and passed into the already limed sewage. The precipitation was completed in the channels, thirteen in number, about 30 ft. wide, 15 ft. in height, and having an average length of 1,000 ft. The sludge was discharged from these to the sludge settling channels by sweeping the deposit through culverts to the receiving chamber at the engine-house, whence it was pumped into the settling channels. On its way to these the sludge was again passed through gratings to collect rags, &c., which might have escaped the first filth-gratings. The quantity of solid matter extracted by the combined action of these double sets of gratings was between 80 tons and 100 tons per week. A destructor-furnace was built close to the filth hoist for calcination of the refuse. After the sludge had settled and the top-water had been drawn off by means of lowering syphons, the sludge was let into the storage-tanks under the settling channels, whence it was pumped to the ships. The water drawn from the settled sludge was separately treated with lime and iron, and after such treatment it was allowed to settle in the sewage-precipitation channels. At the Southern Outfall Works, Crossness, the precipitation works were more compact. Practically the whole of the lime was in solution. The iron water was made at Crossness by the simple agitation of the crystals of iron salt with water in an ordinary mixing-mill from which the rollers were removed, stirring-arms being substituted in their place, the effect being equally efficacious with that of the steam-coil at the Northern Outfall works. The The methods of collecting the sludge, settling it, and loading the ships were practically identical with those at the Northern Outfall. The discharge of the sludge took place in the Barrow Deep, commencing at a point ten miles east of the Nore, about half-way between the Swin Channel and the Princes Channel. As the sludge was discharged 10 ft. under water, and was thus agitated with the sea-water by the action of the twin-screws, the diffusion of the sludge in the water is very complete, so much so that its visible effect was soon lost. The heavy matters soon separated by subsidence, and the animal and vegetable débris was rapidly consumed. Although some 10,000,000 of tons of sludge had now been deposited, the most careful examination failed to detect more than the merest trace, either in dredgings or on the sandbanks, which were now as clean as in 1888. The cost amounted to about 4¼d. per ton of sludge. The average character of the sewage before and after treatment was set out in tables of monthly averages of daily analyses of samples taken every two hours, day and night, at each outfall during the year 1894. At Crossness, in consequence of the better solution of the lime-water, there was a reduction of the matters held in solution of 17 per cent., a result which agreed closely with the experiments by the author in 1887. At the Northern Outfall the results were not yet so good, but this would doubtless be remedied as soon as the new liming station was erected. Tables showing the averages of daily analyses of the river-water since 1885 were given, and showed that the degree of aeration at high-water had increased from 17·4 per cent. in 1887 to 55·5 per cent. in 1894; and this improvement has been accompanied by a large reduction in the quantity of free ammonia.

APPLICATIONS UNDER THE 1894 LONDON BUILDING ACT.

AT the meeting of the London County Council on the 23rd inst., the Building Act Committee reported that they had considered the undermentioned applications under the London Building Act, 1894, and had arrived at the following decisions. Those applications which have been agreed to are granted on certain conditions:—

Lines of Frontages.

Kensington, South.—That consent be given to the erection of a one-story lodge upon part of the open space in front of the Oratory, Brompton-road, on the application of Mr. P. Shaw on behalf of the Very Rev. F. Antrobus and the Fathers of the Oratory.

Norwood.—That consent be given to the erection of buildings on the west side of Herne Hill and the east side of Milkwood-road, Lambeth, adjoining the postal-sorting-office, on the application of Messrs. Douglas Young & Co., on behalf of Mr. G. Ballard.

Bethnal Green, North-East.—That consent be given to the erection of a stable and coachhouse, with loft over, on the south side of Sewardstone-road, next No. 63, on the application of Messrs. Holman & Goodrham on behalf of Mr. W. T. Payne.

Dulwich.—That consent be given to the erection of a one-story shop on a portion of the forecourt of No. 8, Forest Hill-road, Honor Oak, on the application of Mr. G. F. Grover on behalf of Mr. G. Ferris.

Fulham.—That the application of Dr. Ivor Davis for an extension of the period within which the erection of a porch and two two-story additions to No. 4, Filmer-road, were required to be completed, be granted, upon condition that the porch and additions referred to be completed within two years from October 15, 1895.

Hampstead.—That consent be given to the erection of a block of residential flats on the east side of Fairhazel-gardens, to flank upon Goldhurst-terrace, on the application of Mr. T. S. Stephens on behalf of Mr. W. H. Pearce.

Holborn.—That consent be given to the erection of an oriel window, at the first floor level, in front of the "Hand-in-Hand" public-house, No. 57, High Holborn, on the application of Mr. C. H. Flack, on behalf of Mr. B. P. Lucas.

Kensington, North.—That consent be given to the erection of a covered way upon part of the forecourt of No. 30, Lansdowne-road, Notting Hill, on the application of Mr. L. Karslake, on behalf of Mr. J. A. Shirreff.

Kensington, South.—That consent be given to the erection of an iron and glass covered way upon part of the forecourt of No. 12, Upper Phillimore Gardens, on the application of Messrs. Shuffrey & Co. on behalf of Mrs. H. Langworthy.

Marylebone, East.—That consent be given to the erection of a balcony at the first floor level in front of No. 96, Wimpole-street, Cavendish-square, on the application of Mr. F. M. Elgood on behalf of Mr. G. J. Elgood.

Marylebone, East.—That consent be given to the erection of a balcony at the first floor level in front of No. 47, Queen Anne-street, Cavendish-square, on the application of Mr. E. Carritt on behalf of Mr. J. Irwin Palmer.

Rotherhithe. — That consent be given to the erection of a one-story addition to the flank of the "Red Lion" public-house, Deptford Lower-road, also to the erection of two houses with shops adjoining in Rotherhithe New-road, at the corner of Bush-road, on the application of Messrs. Watney & Co., Limited.

Hoxton.—That consent be given to the construction and erection of two enclosed gangways across Jane Shore-court, Shoreditch, to afford communication between the London Music Hall and the new building on the opposite side of the court, on the application of Mr. F. Matcham on behalf of the proprietor of the hall.

Kensington, South.—That consent be not given to the erection of buildings on the east side of Addison-road, on the site of No. 1, on the application of Mr. E. Bath on behalf of Mr. E. Collins.

Clapham.—That consent be not given to the erection of houses on the south side of Poynder's-road, Clapham Park, between Chios House and Cavendish-road, on the application of Messrs. Lee and Pain on behalf of Sir J. Dickson Poynder, Bart.

Dulwich †—That consent be not given to the erection of stables and a one-story van-shed at the rear of No. 1, Croxted-road, West Dulwich, to abut upon Park-road, on the application of Mr. W. H. Duffield on behalf of Mr. G. Dyer.

Hampstead.†—That consent be not given to the erection of houses with shops on the north-east side of Edgware-road, between Manstone-road and the site of seven houses with shops northward belonging to Messrs. Bridge & Neal, on the application of Messrs. Tuckett & Son, on behalf of the Trustees of the Cotton Estate.

Islington, North.—That consent be not given to the erection of an addition to a one-story building on part of the forecourt of No. 465, Holloway-road, at the corner of Mercer's-road, on the application of Mr. C. Meaby, on behalf of Mr. G. Larner.

Islington, West.—That consent be not given to the erection of a two-story addition in front of No. 2, Jackson-road, Holloway-road, on the application of Messrs. New & Son, on behalf of Mr. F. J. Mudford.

Lewisham.†—That consent be not given to the erection of one-story shops on a portion of the forecourts of Nos. 55, 57, 57A, 59, 61, and 61A, Dartmouth-road, Forest Hill, on the further application of Mr. G. Tolley, on behalf of Mr. E. C. Christmas.

Lewisham.—That consent be not given to the erection of five houses on the north side of Catford Hill, and eight houses with projecting bay windows on the west side of Beechfield-road, on the application of Messrs. Philipps & Norfolk.

Lewisham.†—That consent be not given to the erection of a pent-roof, with wooden facia and balustrading, in front of No. 15, Rushey Green, Catford,

on the application of Mr. A. L. Guy, on behalf of Mr. W. Taylor.

St. George, Hanover-square.—That consent be not given to the erection of an iron and glass shelter over part of the public way in front of No. 39, Dover-street, Piccadilly, on the application of Messrs. J. Barker & Co., Limited, on behalf of Paquin, Limited.

St. Pancras, North—That consent be not given to the erection of fourteen houses on the north-west side of Gordon House-road, with the flank of the easternmost house to abut upon Highgate-road, on the application of Messrs. R. H. and H. Kerr, on behalf of Mr. C. W. Matthews.

Width of Way.

Battersea—That consent be given to the erection of a two-story addition at the rear of the "Surrey Hounds" public-house, No. 90, St. John's Hill, to abut upon Plough-terrace, on the further application of Mr. J. D'Oyley on behalf of Mr. S. H. Warne.

Deviation from Certified Plans.

Southwark, West.—That sanction be given to certain deviations from the plans certified by the District Surveyor, under Section 43 of the London Building Act, 1894, so far as relates to the proposed erection of the "Eight Bells" public-house, on the site of Nos. 31 and 33, Collingwood-street, and No. 19, Meymott-street, Blackfriars, on the application of Messrs. Perry & Reed, on behalf of Messrs. Hoare & Co.

Line of Fronts and Width of Way.

Chelsea.—That consent be not given to the erection of a one-story class-room at the Servite Catholic School, Winterton-place, Park-walk, on the application of Mr. J. H. Eastwood on behalf of the Rev. Father Brugnoli.

Southwark, West.—That consent be not given to the erection of one-story shops on the forecourts of Nos. 48 and 50, Lambeth-road, St. George-the-Martyr, on the application of Mr. Jesse Phœnix on behalf of Mr. J. Moore.

Walworth.—That consent be not given to the erection of one-story shops on the forecourts of Nos. 282, 284, 286, and 288, East-street, on the application of Messrs. Percy W. Slark & Co.

Width of Way—Space at rear, &c.

† *Finsbury, Central.*—That the Council in the exercise of its powers under the London Building Act, 1894, do not consent to, or allow of, the erection of a dwelling-house, to be inhabited by persons of the working class, on the site of No. 3, Great Bath-street, Farringdon-road, Clerkenwell, with a shop on the ground floor and a three-story oriel window at the first floor level, such building to be at less than the prescribed distance from the centre, and to exceed in height the width, of the street, also to have an insufficient open space to the basement and to extend above the diagonal line directed to be drawn by the Act, on the application of Mr. T. W. Donovan on behalf of Mr. A. W. C. Shean.

Width of Way and Height of Buildings.

Deptford.—That consent be not given to the erection of buildings on the east side of Hosier-street and the north side of Creek-street, Greenwich, on the application of Mr. L. Jacob on behalf of Messrs. J. & A. Dandridge.

Width of Way and Construction of Buildings.

† *Bow and Bromley.*—That consent be not given to the construction and erection of a large temporary iron store on the east side of Fawe-street, with the boundary fence at less than the prescribed distance from the centre of that street, and the construction of a temporary iron mess-room on the east side of Morris-road, Poplar, on the application of Messrs. Thompson & Hodge on behalf of Spratt's Patent, Limited.

Conversion of Building, Space at Rear, &c.

Westminster.—That the Council, in the exercise of its powers under the London Building Act, 1894, do not allow the conversion into a dwelling-house, with an irregular open space at the rear, of a portion of a workshop in the yard of No. 81, Page-street, on the application of Mr. W. Brass, on behalf of Mr. J. S. Brown.

Formation of Streets.

Woolwich.—That an order be sealed and issued to the Vestry of Plumstead sanctioning a deviation from the plan approved on June 30, 1896, for the formation or laying out of Waterdale-road, Bostall Wood, Plumstead, by an alteration in the course of a portion of that road.

Fulham.—That the Council do approve of a further variation from the plan sanctioned by it on May 28, 1895, for the formation of certain streets upon Morrison's Farm Estate, Wandsworth Bridge-road, by the abandonment of the formation of Erivane-street and the portion of Settrington-road, north of Woolneigh-street, and the widening of Woolneigh-street to 45 ft., on the application of Mr. W. C. Poole, on behalf of Messrs. Allen & Norris.

Artisans' Dwellings.

Whitechapel.—That the Council do, in the exercise of its powers under Sections 41 and 42 of the London Building Act, 1894, sanction the amended plans and drawings, dated February 8, 1897, submitted by Mr. J. R. Smith on behalf of Mr. F. Moss, for the construction on the site of Nos. 123 to 147 (odd numbers only), Back Church-lane, and also partly on the site of the houses and footways in Providence-place, Williams-rents, and Brunswick-place, of two blocks of five-story dwelling-houses, such new buildings to be inhabited by persons of the working class; and further, that the Council, acting under the powers conferred by Section 41 of that Act, do permit the erection of the said new buildings with the proposed open spaces about the same.

Height of buildings, cubical extent and means of escape in case of fire.

Limehouse.—That the Council in the exercise of its powers under sections 49 and 76 of the London Building Act, 1894, do not consent to the erection on the north side of Dod-street of two blocks of cabinet makers' shops of a greater height than the width of that street, to exceed in extent 250,000 cubic feet, and to be used only for the purposes of the trade of a cabinet maker; and that the Council, as empowered by section 63 of that Act, do decline to issue a certificate in respect of the means of escape in case of fire proposed to be provided for the persons dwelling or employed in the top floors of the said buildings, on the application of Mr. J. M. Knight, on behalf of H. Herrmann, Limited.

Means of Escape at Top of High Buildings.

St. George, Hanover-square.—That the Council in the exercise of its powers under section 63 of the London Building Act, 1894, do decline to grant a certificate in respect of the means of escape, in case of fire, proposed to be provided for the persons dwelling or employed in the fifth floor of an addition on the east side of the Berkeley Hotel, No. 77, Piccadilly, at the corner of Berkeley-street, on the application of Mr. R. Griggs on behalf of the Berkeley Hotel Company.

Recommendations marked † are contrary to the views of the Local Authorities.

Correspondence.

To the Editor of THE BUILDER.

THE DRAWING OF "A THIRTEENTH CENTURY ARCHITECT."

SIR,—I am obliged to Mr. Bilson for his information, and must plead guilty to having "forgotten my Viollet-le-Duc." It is not surprising to find that the drawing has been noticed before, and I confined myself to saying that I thought it had not been "exhibited," as it was at the A.A. meeting by a slide exactly reproducing the original. But on comparing this with the illustrations mentioned in your last issue, it would appear that no *accurate* copy of it has been hitherto available. Viollet-le-Duc gives a sketch of two of the figures, drawn as if they had been sculptured, incorrect in several points, "frenchified" almost out of resemblance, and about as like the original as the drawings professing to represent events abroad "from a telegraphic description." Green's illustration is also a free sketch; it gives the whole scene, but the force and character of the original are lost. Gardiner has a more correct but less complete representation; and in not one of these can the real expression and action of the personages be seen.

The mediæval architect is receiving such unkind treatment just now that it is only fair to put him forward exactly as his contemporaries knew him, and not only in "reproductions," which are, unintentionally, rather caricatures than true portraits.

ARTHUR S. FLOWER.

RE PETERBOROUGH CATHEDRAL.

SIR,—It is, I fear, rash for one of the signatories, on whom you have poured so much fine scorn, and by representing them as ignorant, incompetent, and careless (at heart) of the real welfare of the cathedral, have emphasised the better fate of the building in its present hands—to ask whether the facts that you have recently been giving us really bear out this view.

The work of demolition was begun in mid-winter, although there was no urgency in the matter, and it might well have taken place during a more genial season.

Whilst the frost and snow was on the ground, and in face of predictions warning us of a winter of unusual severity, we learn that the clerk of the works is pouring water into the piers, in order to make experiments which should have been postponed till all danger from frost was past.

In your issue of the 13th inst. I gather that the Dean and Chapter—by the purchase of "an old farm house, in order to use the material for piecing the front where new stones are absolutely necessary," are now acting independently and in defiance of their architect.

Seeing how much stress has been laid on their acting in conformity with, and under the direction of, their architect, this is a disconcerting piece of revelation. Mr. Pearson knows, and Mr. Thomson knows, that old stones should not be taken out of one old building to be used in another. It is impossible to set them without reworking their faces, and the weathered face of an old stone, once removed, can never be reformed. These stones, if by mischance they should be used as proposed, will perish rapidly.

The grounds given for taking down the masonry and rebuilding were to make a permanent restoration; but instead of accepting the inevitable necessities of so doing, the Dean and Chapter hope (it appears) to evade the outcome of their action by putting up a short-lived blind to parry the natural and disappointed comments that will be made on their work.

HALSEY RICARDO.

MODELS OF DESIGNS AND BUILDINGS.

SIR,—Some time ago you sought and published the views of some members of the architectural profession on the desirability of obtaining a better exhibition of current architecture, &c., than is afforded by the space in the architectural room at the Royal Academy. Amongst the opinions given were some in support of exhibiting models of architects' designs and buildings—a feature which has never received consideration at the Royal Academy comparable, for instance, with that given to it in the Salon exhibitions.

It occurs to me that a good opportunity for bringing models of internal and external architectural design and decoration before the profession and the public arises in connexion with the forthcoming International Building Trades' Exhibition at the Agricultural Hall, Islington. If the promoters of that movement made a special effort to collect the models of buildings of interest or importance which British architects could lend them, the rather neglected art of architectural modelling might be somewhat advanced, especially if some of the beautiful and well-finished models of Parisian and other Continental buildings, which have been shown abroad during recent years, could also be obtained.

EDWIN SEWARD.

BERKHAMSTED SCHOOLS CHAPEL.

SIR,—I observe in your issue of the 13th inst. a design for our chapel. As the chapel is very widely known and is very beautiful, I think it right to say that the design which I finally accepted, and by which the chapel was built, is not the one that has been forwarded to you for publication. The accepted design was by Mr. Charles Rew of Berkhamsted.

Berkhamsted School, Herts. T. C. FRY.

*** It will be seen that in the short description (furnished to us by the authors of the design) it was not stated that the chapel had been built, only that the design had been made for it by them; but we think that the authors ought to have made it more clear that the design was a competition one only, and not the selected one. We regret to say that architects are occasionally not so explicit on this point, in such cases, as they should be. On the other hand we may suggest to our correspondent that the selection of a local architect, in what was apparently an open competition, looks rather as if the selection had been influenced by other than merely architectural reasons.—ED.

The Student's Column.

SPECIFICATIONS.—IX.

JOINER—(*continued.*)

THE doors numbered on plans to be 2¼ in. folding-doors, each leaf in three panels, ovolo moulded both sides with slamming stiles rebated and beaded. The upper panel in each leaf to be open and prepared for plate glass with mitred shifting beads secured with brass cups and screws. These doors to have 4½ in. by 4 in. chamfered and rebated frame, chamfered and twice rebated transome, and 2 in. ovolo moulded fixed fanlight. The doors to be hung with a pair of 4 in. wrought iron butts to each leaf. Put brass handles, lettered "Pull," p.c. 10s. each, and short helical door-springs on one side, and brass finger plates, p.c. 7s. 6d. each, on the other. No lock to these doors.

The doors numbered on plans to be 2¼ in. swing doors, each leaf in five panels, moulded both sides, with properly rounded heels to stiles. The middle panel in each leaf to be open and prepared for plate glass, with mitred shifting beads secured with brass cups and screws. These doors to have 6 in. by 4 in. moulded frame, hollow groved for heel of door. The doors to be hung with spring hinges, p.c. 30s. each, let into boxing framed to floor joists. Put bronzed pull handles, p.c. 15s. each, one pair on each side of doors.

The doors numbered on plans to be

2 ft. 8 in. by 6 ft. 9 in., 2-in. five-panel doors, moulded both sides, hung with a pair of 4-in. wrought-iron butts, and to have 6-in. two-bolt mortice locks and brass furniture, p.c. 7s. 6d. each. The linings to be 1½ in. double rebated linings on wrought, splayed, and beaded grounds, and architrave mouldings out of 4½ in. by 2 in., with blocks the full height of skirting out of 5 in. by 2¼ in., shaped to suit architraves.

Stairs.—The stairs to have 1¼ in. treads, with rounded nosings and inch risers glued, blocked, and bracketed on 3½ in. by 2 in. fir carriages, 1½ in. moulded outer string, 1¼ in. moulded wall string, inch beaded apron linings, curtail step and veneered riser, newels turned and moulded out of 3½ in. by 3½ in. selected Riga wainscot, moulded handrail out of 3 in. by 4 in. selected Riga wainscot, 1½ in. deal turned balusters housed to string and handrail. The newels to be brought below landings, and turned as pendants 6 in. long. The wainscot to be twice oiled with olive oil at completion.

Fireproof Stair.—The stair to be constructed as shown on detail drawing, with rolled steel joists, which will be supplied by Messrs. at the p.c. sum of £ , cut to sizes and delivered on the works. The contractor to put work together, and form stair in concrete of Portland cement and coke breeze in proportion of 1 to 6. This stair to have inch teak treads, with 2 in. teak rounded nosings tongued to same, and secured with stout brass screws to plugs let into concrete, glazed brown tile risers, soffits and ends of steps rendered and set in Keene's cement. The newels to be turned and moulded out of 4½ in. by 4½ in. teak, balusters turned and moulded 2 in. deal, handrail moulded out of 3½ in. by 2½ in. teak. The teak to be left clean from the plane, and not oiled or varnished.

Skylights.—The skylights over to be 2 in. chamfered bar skylights, weathered and throated for condensation, 4 ft. 6 in. by 2 ft. 6 in., fixed to 1¼ in. wrought, rebated, and staff beaded curbs. Put lead gutter behind skylight, with 1 in. gutter boards and framed bearers.

Trap Doors.—The trap doors over to be 2 ft. 6 in. by 2 ft. in clear with traps of ¾ in., matched and V-jointed boarding, with two 3½ in. by 1¼ in. ledges fitted and hung with a pair of 3 in. wrought-iron butts to inch rebated and staff beaded curb linings tongued at angles.

Step-ladders.—The step-ladder shown on plan of to be formed of 4½ in. by 2 in. treads, with rounded nosings, housed and tenoned to a pair of 9 in. by 3 in. sides. Under top, middle and bottom treads put ½ in. wrought-iron tension bolt with head, nut, and washer. Put 2½ in. deal mop-stick handrail, with 3 in. by 3 in. posts at each end halved and bolted to sides.

Casings.—The steel girders over to be cased with 1¼ in. cross-tongued casing, grooved and tongued and staffbeaded at angles, and fixed to girders with 3 in. by 2 in. blockings, 18 in. apart, bolted through webs of girders with $\frac{3}{16}$ in. bolts. The cornice moulding to be out of 7 in. by 3 in., screwed up to casing and joists.

Put inch beaded pipe casings on rebated and beaded grounds to all exposed pipes, and fix same with brass cups and screws to remove easily.

Shelving.—Provide, to be fixed where directed, 100 ft. super. of inch wrought cross-tongued shelving with 1½ in. by 1 in. bearers, and wrought-steel brackets.

Fix where directed in store-room 100 ft. super of open lattice shelving, 2 ft. 6 in. wide, of 1½ in. by 1¼ in. battens, 3 in. apart, halved and pinned, and 1½ in. by 2½ in. bearers 2 ft. apart, carried by 2½ in. by 2½ in. framed posts.

Dresser.—Supply and fix, where shown on plan, in kitchen a deal dresser, 6 ft. wide by 7 ft. 6 in. high, with 1¼ in. sides and centre division, ¾ in. top on 3½ in. by 1 in. rails framed to sides and centre, with moulded cornice out of 3½ in. by 2 in., three tiers of inch shelves, 5½ in. wide, grooved for plates, and with three dozen brass cup hooks, slab of 2 in. white deal cross-tongued, and in two thicknesses, pegged together, three drawers 7 in. deep inside with 1¼ in. fronts, ¾ in. sides, lap dovetailed to front and dovetailed to ¾ in. backs, and grooved and tongued to ¾ in. bottoms, bearers for drawers 3½ in. by 1 in., turned oak drawer handles out of 3 in. by 3 in., 1¼ in. cupboard front below drawers in two cupboards, each with a pair of doors hung folding with rebated and beaded stiles, 1¼ in. pot board on 3½ in. by 2 in. bearers, shelf in cupboards 18 in. wide, of inch deal cross-tongued. The cupboard doors to be hung on 3 in. wrought-iron butts, and to be fitted with 4 in. cut cupboard locks, and 4 in. neck bolts.

Water-closet Fittings.—Fit up the water-closet on first-floor in Honduras mahogany, stained and French polished, with 1 in. cross-tongued seat and riser, 1 in mitre clamped and cross-tongued flap, with rounded nosing and thumb moulding tongued on, hung with 3 in. brass butts to frame, and with ¾ in. by 5 in. beaded skirting around. The whole to be put together with brass cups and screws to remove easily and fixed on strong deal bracketing. Seat hole to be cut and dished. Handle hole to be cut and beaded. Supply and fix quadrant shaped Honduras mahogany paper box, 9 in. radius of ¼ in. stuff, with door hung on 1½ in. brass butts and fitted with solid brass turn buckle fastening. (N.B.—Pedestal closets are often supplied with seats. If these are adopted it should be mentioned in Joiner. If something different from the usual type is desired specify it). The servants' water-closet to have similar fittings but in yellow deal picked for staining, except the seat, which is to be in clean willow.

Bath-Room Fittings.—Fit up bath with stained and French polished 1¼ in. Honduras mahogany top, cross-tongued, and with dished perforation and rounded nosing. The enclosure to be 1¼ in. deal, panelled and moulded framing, made to remove easily in sections, and fixed with brass cups and screws. Supply and fix cradling for bath of 3½ in. by 2 in. stuff, and assist plumber in fixing.

Fit up towel-rack on wall with cut and shaped ends out of 4½ in. by 1½ in. stained and French polished Honduras mahogany, and two teak rods, 1½ in. diameter, 3 ft. long.

Lavatory.—Fit up the enclosure of lavatory basin with 1¼ in. panelled and moulded front, with door hung on a pair of 3 in. brass butts, and fitted with brass turnbuckle fastening. Provide and fix bearers for lavatory basin, and assist plumber in fixing. The top and skirting of lavatory will be in one piece with basin.

Cupboards.—The cupboard in to have 1½ in. framed fronts with a pair of 1½ in. doors hung folding with rebated and beaded stiles, each leaf in three moulded and square panels, and hung with a pair of 4 in. wrought-iron butts. Fit with 4 in. cut cupboard lock, a pair of brass knobs, and a pair of 4 in. neckbolts. Top of cupboard to be ¾ in. and cross-tongued, with rounded nosing and moulding under out of 2½ in. by 1½ in. This cupboard to have one cross-tongued inch shelf, beaded hat-rail 4½ in. by 1 in., with No. 6 wrought-iron hat and cloak-hooks.

Picture Moulding.—Put round walls of 3 ft. below bottom of plaster cornice picture-moulding out of 3½ in. by 2 in. plugged and screwed to wall every 18 in. apart.

Wall Panelling.—The panelling in dining-room to be 1½ in. framed and panelled, as shown on detail drawing; the panels in yellow pine in one width, backed with canvas put on with marine glue, the back of panelling to be served over with the glue, the canvas tacked on and stretched tightly, and a hot iron passed over to melt the glue. The cornice to be framed up out of 7 in. by 3 in. with dentil course and carved egg and tongue moulding planted on, the chair rail moulded out of 4½ in. by 2½ in. tongued on, the skirting moulded out of 9 in. by 2 in., and tongued to floor. The carved frieze to be of sycamore, supplied and carved by Mr. , and to be framed in and fitted to panelling by the contractor. Provide the p.c. sum of for this carved frieze, to be paid to Mr. by the contractor within one month after presentation of the architect's certificate. This panelled work to be fixed to 2½ in. by 1¼ in. grounds plugged to wall.

Church Seats.—The seats to be executed in accordance with detail drawing of selected Sequoia of quality equal to that of sample in architect's office. One seat to be worked and approved by the architect before the remainder are commenced. The seats to be fixed to floor (describe method, whether tenoned and screwed, or by means of iron brackets or otherwise).

Hard Woods.—Few architects have the very highly specialised knowledge to be able to distinguish between varieties of the same hard wood from different countries, and although the student might specify a certain wood as, say, Riga waistcoat, he can hardly be expected to be able to determine by inspection alone whether what he specifies is being supplied. There are, therefore, two courses open to him, either to specify that the wood is to be of a quality equal to that of a sample in architect's office, as example given in last clause, or to quote a reliable timber merchant's name and price—thus: The mahogany is to be from Tobasco, of quality equal to sample approved by the architect, and is to be obtained from Messrs. , whose price at inch thick is 7d. per foot super.

Completion.—The contractor is to leave all woodwork clean and perfect, and any work which may show a shrinkage of $\frac{1}{16}$ in. between any two pieces of wood, or which may crack in the substance of any panel or framing, shall be taken out and reinstated, at the contractor's expense, with sound well-seasoned material. (Clauses of this or similar drastic nature are becoming general in specifications. The use of unseasoned wood is now so common, and the difficulty of detecting it till shrinkage occurs is so difficult, that it is no unusual thing for such defects to make their appearance even before the painting is finished.)

OBITUARY.

MR. ALFRED WILLIAMS.—Information has been received from Johannesburg of the death of Mr. Alfred Williams, brother of Mr. W. Clement Williams, architect and surveyor, Halifax. Deceased, who was 33 years of age, was apprenticed to Messrs. Horsfall & Williams, of Halifax, and was at the time of his death, it is stated, a partner in a leading firm of architects in South Africa.

MR. WILLIAM DAWES. — The death of Mr. William Dawes, architect, of Manchester, took place on the 16th inst. The deceased was better known to the general public by the nom de plume "Elijer Goff," under which he wrote and published various humorous works some years ago. Mr. Dawes was born in Gloucester, in 1840. He was articled in the architectural profession in London in 1858, and subsequently practised in London, Denbigh, Birmingham, and Manchester offices until he became partner with Mr. W. H. Hayley, architect, of Manchester, in 1863, only five years from the commencement of his professional career. His first building, won in competition, was a small church school in Oldham. He distinguished himself in the competition for the Manchester Town Hall. The following list will show that in many minor competitions he added considerably to his laurels:—first in cottages for Durham County Parmanent Building Society; first in schools, Every-street, Manchester; first in Primitive Methodist chapel and schools and house, in Ardwick; second in schools, Vine-street, Manchester; fourth in schools, Chester-street, Manchester; first in schools, at Beccles, Suffolk; first in Board schools, Abbott-street, Manchester; first in Conservative club buildings, Prestwich; second in church, &c., Collyhurst; and fourth in Gloucester Asylum. Mr. Dawes greatest work, undoubtedly, was the design for the Victoria Buildings in this city. His first book, "Elijer Goff's Trubbles, Travels, and Other Amoozements," appeared in the spring of 1872, and ran through three editions. His second book, "Elijer Goff's Kristmus Book," followed in the winter of that year. His third book, "Elijer Goff's Kronikle of a King," which ran through two editions of 5,000 each, was not published until 1878.—*Manchester Courier.*

GENERAL BUILDING NEWS.

NEW THEATRE, GLOUCESTER.—At a recent meeting of the Improvement Committee of the Gloucester City Council plans of a new theatre and opera house, which a London syndicate are about to erect on the site opposite the Municipal Schools in Brunswick-road, were submitted and passed. The plans have been prepared by Mr. John P. Briggs, of London. The exterior materials will be brick and terra cotta. Seating accommodation will be provided for 1,500, and from each seat there will be a clear and uninterrupted view of the stage. The latest lines have been followed in regard to comfort, exits, electric lighting, and ventilation.

S. MARK'S CHURCH, SWINDON.—This church, which was built about fifty years ago, from designs by the late Sir Gilbert Scott, has recently been enlarged by an extra bay to the chancel, a south chapel and a vestry on the north side, with additional space for the organ over. An arcade of three bays divides the chancel from the chapel, and the ceilings of both are painted; the former is of a pointed barrel type, and the latter flat, divided into panels by ribs, having gilt bosses at their intersections. The east window of the chapel is about to be filled with painted glass, and the altar is to be enclosed with riddels, carried by decorated posts. The floor of the chancel is of a temporary character; it is intended that marble should be laid eventually. The contractor for the work was the late Mr. Wiltshire, of Swindon, and the architect, Mr. Temple Moore (of Hampstead), who also designed the screen, stalls, and organ case, which were placed in the church some years ago.

NEW THEATRE FOR WORTHING.—A company has been formed in Worthing for the conversion of the existing assembly rooms into a theatre more in keeping with the requirements of the town. A new front will be erected to Bath-place. The alterations, which will be of an extensive character, will include the building of a new stage, proscenium, and dress circle, and it is proposed to erect a large hall in connexion with the theatre available for dances, banquets, &c. The work will be carried out from plans prepared by Mr. Alfred T. Cooke, architect, of Worthing.

VICARAGE HOUSE, ST. THOMAS-BY-LAUNCESTON.—The site has just been purchased for the proposed vicarage house for St. Thomas-by-Launceston, and the plans and specifications of the architect, Mr. Otho Peter, of Launceston, have been accepted.

CO-OPERATIVE PREMISES, SCOTSWOOD, NORTHUMBERLAND.—The Blaydon Co-operative Society has secured, on what is to be known as Station-road, Scotswood, a site for a branch store, having a frontage of 110 ft., and a depth, the stables being included, of 93 ft. Residences for managers are to be attached, and the second story of the main block is to be devoted to the purposes of education and recreation under the auspices of the society. There is to be a lecture hall measuring 40 ft. by 29 ft., while a space of like dimensions is to be partitioned off to serve as a library and reading and smoke-rooms. The architect for the new undertaking is Mr. William Glover, Newcastle.

PROPOSED NEW CHURCH, ASHBY, NEAR BRIGG.—A movement is on foot for the erection of a new church for Ashby, in the parish of Bottesford, near Brigg, Lincolnshire. A site has been secured, and plans for the church have been prepared by Mr. C. Hodgson Fowler, of Durham. The estimated cost is 4,000*l.*, the church to seat 600.

BRAMPTON INSTITUTE, HUNTINGDONSHIRE.—The formal opening of the institute and reading-room at Brampton took place recently. The architect of the building was Mr. John Bird, and Mr. Allen was the builder.

THEATRE, STOKE, STAFFORDSHIRE.—A new theatre, situated in Wolfe-street, Stoke, has just been opened. It consists of a stage with ground and first floor dressing-rooms, orchestra, auditorium, (comprising stalls, pit on the ground floor; on the first floor, four boxes, circle, back circle, and gallery). Between the ground floor and the floor of the back circle are a refreshment bar and office. The seating accommodation on the ground floor will be for 700, and on the first floor 400: altogether 1,100. The building is from the designs of Messrs. Lynam & Beckett.

INFIRMARY, PRESCOT.—On the 18th inst. Mr. William Middlehurst, as Chairman of the Building Committee, laid the foundation stone of the new Prescot infirmary which the Guardians are erecting at a cost of 25,000*l.*, including a new laundry building. There will be four blocks of buildings, all of local brick, with stone dressings and quoins. Two of the blocks will be three stories high, one two stories, and one special block will be built as a maternity ward. The whole will afford accommodation for 300 beds. The architects are Messrs. J. & W. Gandy, St. Helen's; Mr. Fred Brown, St. Helen's, is the builder; while Mr. W. Molyneux, St. Helen's, is erecting the laundry.

CHURCH, BUXTON, DERBYSHIRE.—A new mission church, to accommodate 400 persons, and dedicated to St. Mary the Virgin, was recently opened in Higher Buxton. The building has been erected from designs by Mr. C. Heathcote, architect, Manchester and Buxton, and contains a chancel and two vestries, a porch entrance at the west end, and the seating is by chairs. A panelled altar in oak has been provided, designed by the architect, and made by Mr. F. W. Booth, of Oakdene. The building has been erected by the Patent Wire Wove Roofing Company.

INFIRMARY NURSES' HOME, WORCESTER.—On the 15th inst. the Countess of Coventry laid the foundation-stone of the new Nurses' Home at the Worcester infirmary. The works are being executed by Messrs. Wood & Sons, Worcester, from the designs of Messrs. Lewis Sheppard & Son. The building, which will cost about 4,000*l.*, is being erected in Wheeley's Gardens, adjacent to the infirmary. It will be in three stories, and thirty-two bedrooms will be provided for sisters and probationers. A covered way will afford direct communication between the home and the infirmary.

NEW WARDS, MONKWEARMOUTH HOSPITAL, DURHAM.—The new wards of the Monkwearmouth and Southwick Hospital were opened by Lady Elizabeth Williamson on the 16th inst. The extension comprises four wards, viz., the Williamson Ward and the Addison Ward on the ground floor, and the Thompson Ward and the Branfoot Ward on the first floor. The first two are to be reserved for female patients. Altogether twenty-six new beds are to be provided, making a total in the institution of forty-two. The contractor for the work was Mr. J. B. Stott, of Monkwearmouth, and the architects were Messrs. W. & T. R. Milburn, Sunderland.

PUPIL TEACHERS' SCHOOL, CARDIFF.—The new pupil teachers' school at Howard Gardens, Cardiff, was opened recently by Mr. T. E. Ellis, M.P. The school is erected at the rear of the Cardiff School Board offices, Howard Gardens, contiguous to the lecture theatre of the higher grade school, and is a block of buildings 117 ft. long by 42 ft. in width, and two stories in height. The ground floor comprises two class-rooms, each accommodating fifty scholars, with cloak-room and lavatory accommodation. Upon the same floor is situated the gymnasium, and also a student's workshop; these rooms also have lavatory accommodation. The first floor affords accommodation for two class-rooms, each accommodating fifty scholars, the rooms being divided by revolving wood shutters. The art class-room is also situated upon this floor, as well as the teachers' private rooms, store-rooms, cloak-rooms and lavatories. The buildings are constructed of white pressed brick, relieved with red brick bands and arches. The roofs are covered with green slates and red terra-cotta cresting. The floors throughout are constructed of concrete, with iron joists, and covered with wood blocks. The lavatories throughout have been fitted with Adams's patent lavatories. The buildings have been erected by Messrs. William Thomas & Co., Cardiff, and under the superintendence of the architects, Messrs. J. P. Jones, Richards, & Budgen, Cardiff.

COTTAGE HOSPITAL, GORLESTON, SUFFOLK.—On the 2nd inst. the two new wings which have been added to the Cottage Hospital at Gorleston were opened by the Mayor of Yarmouth (Mr. H. E. Buxton). The architect of the additions is Mr. H. Dudley Arnott, of Gorleston. They consist of two wards for male and female patients respectively, in each of which five beds will be placed. Bath and operating rooms are attached, and improved systems of heating and ventilation have been introduced. The new wings are built of red brick. The builders are Messrs. Read & Curtis, of Yarmouth and Gorleston.

BOARD SCHOOLS, WESTON-SUPER-MARE.—The new Board Schools in the Walliscote-road, Weston-super-Mare, are being built by Mr. Chas. Addicott, according to plans prepared by Messrs. Price & Wooler, architects. That portion of the building allotted to the infants has just been completed. The hall is 40 ft. by 30 ft. and 23 ft. in height. The floor is laid with wood blocks. The hall is also heated by hot-water radiators. Surrounding the central hall are four class-rooms, 25 ft. by 22 ft., each providing accommodatibn for sixty-eight scholars. A babies' room has been provided. There are also rooms set apart for the teachers. A gymnasium has been erected. The heating system has been carried out by Messrs. Bryant & Sons. The whole of the structural work has been superintended by Mr. W. A. Hayward, clerk of the works.

ADDITIONS TO HOSPITAL, JOHNSTONE, N.B.—The new part of the Combination Hospital, situated on the Linwood-road, Johnstone, was recently opened. The extensions have been executed to the plans of Mr. J. L. Cowan, of Glasgow, and have cost over 4,000*l.* The contractors were:—For building, Keanie, Lochwinnoch; joiners, Purdon & Cuthbertson, Kilbarchan; plastering, M'Queeny, Glasgow; heating, M'Cormack & Son, Glasgow; painting, J. M'Connell, Johnstone; engineering and laundry work, Tullis & Co., Clydebank; slating, Marshall, Kilbarchan.

ISOLATION HOSPITAL, AUGHTON, LANCASHIRE.—On the 9th inst. the Countess of Lathom opened Holly House, Aughton, which has been acquired by the Ormskirk Rural District Council as an Isolation Hospital. The house is situated in four acres of land, and has been laid out for typhoid and scarlet fever cases. Mr. C. S. Beeston has been the architect of the work, and Mr. James Pilkington (Ormskirk and Rainford) the contractor.

NEW INFECTIOUS DISEASES HOSPITAL FOR KIRKCALDY.—At a meeting of the Kirkcaldy Town Council recently the minute of Committee of the 6th inst. was read, recommending the Authority to adopt the plans for the proposed infectious diseases hospital prepared by Messrs. Campbell, Douglas, & Morrison, Glasgow, which were approved by the Local Government Board, with the exception that the new hospital should accommodate ten more beds—namely, thirty-three, the total cost to be 9,200*l.*, or 277*l.* 4s. 1d. per bed, the architects coming under an obligation to forego one-half of their commission if the sum estimated is exceeded, excluding, of course, any extras or other work recommended by the Authority during the erection of the hospital. Provost Hutchison moved the approval of the minutes, the motion being seconded by Councillor Orr, and unanimously agreed to.

CHURCH SCHOOL, EWOOD, BLACKBURN. — St. Bartholomew's new school at Ewood was opened recently by Mr. W. H. Hornby, M.P. The building has been erected from plans prepared by Messrs. Cheers & Smith, architects, Blackburn. The school is built of brick. The present building is only a third part of the entire school as it will appear when completed. When the school is completed this part of the building will be the girls' department, the boys' department will be the other wing, and the infants' school will be in the centre. The present accommodation is for 250 scholars, the large room, which has a floor area of 60 ft. by 22 ft., holding 130; and the two class-rooms, each 24 ft. 8 in. square, 60 children each. There are also two cloak-rooms and caretaker's closet, and two entrances to the school.

NEW BAPTIST CHURCH, LANCASTER. — A Baptist church has just been opened in Nelson-street and Victoria-avenue, Lancaster. The building has been built from the plans of Mr. N. G. Lewis, of Lancaster. The church and schools together have cost 5,000*l.* The structure is in the Gothic style. At the rear of the chancel is an open baptistry. The contractors have been: masonry, Mr. W. Warbrick; joiners' work, Mr. J. Thompson; slating and plastering, Messrs. Hall & Son; plumbing and glazing, Mr. Abbott; painting, Messrs. Meadowcroft & Sons.

HOSPITAL, BLAWARTHILL, N.B.—The Renfrew and Clydebank Joint Hospital at Blawarthill was recently opened. The building has cost about 10,000*l.* to erect. To the north there is the administrative block, which contains the matron's and nurses' rooms, the kitchen, and other necessary offices. To the east and west of this block there are three pavilions. The one for the scarlet fever patients contains sixteen beds, as well as an ante-room with six beds; while the enteric fever pavilion has eight beds, and the isolation pavilion six beds. The heating of the various buildings is on the hot water pressure system. The architect was Mr. Bryden, of Messrs. Clark & Bell, Glasgow; while Mr. Henderson, of Messrs. Duff & Henderson, was the measurer; and Mr. Lees the clerk of works.

RESTORATION OF TOWER, ST. JOHN'S CHURCH, CARDIFF. — The restoration of the tower of the Church of St. John, Cardiff, has just been commenced. Mr. C. B. Fowler is the architect engaged in the work, the contract being in the hands of Mr. G. Shepton. The foundation of the tower of St. John's was laid in 1473, and the architect was one Hart, who designed the towers of Wrexham and St. Stephen's, Bristol. The style is Perpendicular. The tower is 130 ft. high.

BOARD-ROOM, BROUGHTY.—On the 18th inst. the new Board-room in connexion with the additions to the Municipal buildings of Broughty Ferry, Forfar, was formally opened. Mr. A. Johnstone was architect, and the contractors were Messrs. James Scott, mason; J. C. Ellis, joiner; William Webster, painter; William Murray, plumber; A. M'Ritchie, plasterer.

OPERATING THEATRE, SWANSEA HOSPITAL.—The building operations in connexion with the new operating theatre at the Swansea Hospital have now been commenced. The new structure will be connected with the hospital from the west corridor, and will overlook Phillips'-parade. The theatre itself will be elliptical in shape, its length will be 26 ft. 6 in., breadth 22 ft., and height 16 ft. The contract is in the hands of Mr. Henry Billings. The architects for the work are Messrs. Wilson & Moxham, Swansea.

ADDITIONS TO SCHOOL, WELLINGTON.—A new schoolroom, to accommodate fifty-four infants, has been added to the existing school premises at Wellington, for the School Board, and was opened recently. The new room adjoins the existing class-room, and is divided by folding glass doors; in addition new cloak-room, lavatory, and office accommodation has been added. The new wing is of red brick, with Bath and local stone dressing with string courses. The work has been carried out by Mr. Wm. James, builder, of Bromyard, from the plans and under the superintendence of Mr. Ernest G. Davies, architect, of Hereford.

STOCKPORT INFIRMARY. — At a committee meeting held on the 22nd inst., the subscribers to the Stockport Infirmary decided to suitably commemorate the Queen's record reign by enlarging and improving the present building. Messrs. Woodhouse & Willoughby, of Manchester, were selected as the architects to carry out the work.

SANITARY AND ENGINEERING NEWS.

BRIDGE, NEAR HEDGELEY, NORTHUMBERLAND.—The new bridge erected over the Dubbs Burn, near Hedgeley, has now been taken over by the County Council. Mr. George Reavell, jun., architect, Alnwick, prepared the plans for the structure and its necessary approaches, the waterway being 22 ft. clear, and the roadway 18 ft. between the parapet walls. The contract for the work was let to Messrs. J. & G. Green, of Warkworth. Mr. R. Adamson was clerk of the works. The stone is from the Shepherds Law Quarry.

DRAINAGE SCHEME, SALISBURY.—The Salisbury Rural District Council have adopted a scheme, prepared by Messrs. Fairbank & Son, for the drainage of the parish of Milford-Without-the-Borough, at a cost of 3,200*l.* The septic tank system is to be used. The details have been referred to the Parish Council and County Council for consideration.

THE TRENT VALLEY SEWERAGE SCHEME, LICHFIELD.—A communication has been received from the Local Government Board, sanctioning the loan of 3 000*l.* for sewerage works on the Trent Valley-road, Lichfield. The plans were prepared by the City Surveyor, Mr. C. J. Corrie.

GRAVING DOCK ACCOMMODATION, GREENOCK.—Mr. Robert Crawford, Engineer to the Greenock Harbour Trust, who was asked to report on the proposed extension of graving dock accommodation, estimates that it will take about 35,000*l.* to widen, alter, and lower the bottom of the dock, and that it will take at least fifteen months to carry out the alterations. He further reports that even with this expenditure the requirements of all classes of vessels would not be met. On the question of constructing an entirely new graving dock at an estimated cost of 90,000*l.*, the Harbour Trust is not satisfied that there is any possible traffic sufficient to warrant such a large expenditure. —*Scotsman.*

ABERDEEN GRAVING DOCK.—The Works Committee recommend the Aberdeen Harbour Commissioners to lengthen the dock to 600 ft., and to increase the width to 57 ft., and the depth at spring tides to 23 ft., at a cost of 118,000*l.*, according to plans by Mr. R. G. Nicol, Harbour Engineer. The dock at present is 500 ft. long, 48 ft. wide, and 20 ft. deep.

LOCAL SEWERS IN LONDON.—The Main Drainage Committee of the London County Council have sanctioned the construction of local sewers as follows:—Hackney: 285 ft., 200 ft., and 845 ft. of 12 in. pipe and concrete sewers in Chevet-street, Mabley-street, and proposed new road respectively on the Sidney-road estate, Homerton. Lambeth: 810 ft. of 15 in. pipe and concrete sewer in Aubin-street, Launcelot-street, and Lower-marsh, Waterloo-road. Lee: 815 ft. of 15 in. and 815 ft. ft. of 12 in. pipe and concrete sewers in Green-lane, Eltham.

FOREIGN.

FRANCE.—Last week the famous collection of water-colours and pastels of the eighteenth-century the work of the brothers Edmond and Jules de Goncourt, was sold at the Hôtel Drouot. The pictures realised the sum of 695,729 francs. ——In one of its recent sittings the Chamber of Deputies, in spite of the opposition of the "Commission du Budget," voted by an enormous majority for the freeing of the national museums.——The jury on the Committee of Lady Artists and Sculptors has awarded to Mme. Debillemont-Chardon the first prize of the 1897 Salon. —— The "Association Co-opérative d'Alimentation" has just organised a competition for an artistic ticket. The president of the jury is M. Puvis de Chavannes.——M. Charles Garnier, member of the Institute, has been elected president of the jury for French architecture at the International Exhibition at Brussels. Vice-President, M. Vaudremer.——On Friday last, in presence of the "Commissaire General" of the 1900 Exhibition, the taking down of the first truss of the Palais de l'Industrie was effected. The work of demolition is being superintended by M. Daval. Great haste will have to be made if the building is to be entirely demolished between the closing of the Salon and the month of September.——The annual exhibition of young country architects, who call themselves "Amants de la Nature," will open on Sunday (to-morrow) in the Rue de Furstemberg, and will remain open till March 14.——The jury on the open competition for the erection of a Mairie in the town of Brunoy have awarded the first prize to an unknown person, whose motto is "Kif-Kif"; the second to MM. Charpentier, Bosio, and Ruet; and the third to M. Charles Letrosne.——The municipality of Versailles has just opened a competition for the rebuilding and enlarging of the Hôtel de Ville. The limit of expense is fixed at 1,200,000 fr. The competition closes on June 12 ——The jury on the competition opened by the municipality of Argenteuil for the building of a "Salle des Fêtes" has awarded the first prize to MM. Dufresne, architect, of Argenteuil, and M. Cavé, architect, of Cambrai.—— A monument has just been inaugurated at Hyères (Var) to the memory of the celebrated preacher Massillon, and presented to the town by M. Alexis Mignon. The monument consists of a bronze statue of Massillon, the work of M. William Pecou, placed on a high pedestal designed by M. Emile Eude, architect. The pedestal is decorated with the arms of the town of Clermont where Massillon died, and of Hyères where he was born.——The municipality of Amiens has decided to build a municipal theatre.——In a hall in the Musée de Feltre at Nantes a monument has just been inaugurated to the memory of the painter Elie Delaunay. The architectural part of this monument has been executed under the direction of M. Montford, architect, of Nantes. The sculpture is by Chaplain.

GERMANY.—The official reports on the telephone system in Germany show a continual and rapid increase of subscribers and connexions throughout the empire, and though the connexions between the towns are not yet as common as in Sweden, a number of new and important lines have been opened. Berlin has lately been connected by telephone with Copenhagen, a distance of about 500 miles, and with Vienna, a distance of nearly 450 miles. We understand that lines between Berlin and St. Petersburg are contemplated, or already actually in course of construction, also lines between Berlin and Buda Pesth, Brussels, Prague, and Amsterdam respectively. The success of the telephone system in Germany is primarily due to the low rates charged to subscribers. We believe the annual subscription at Berlin is 5*l.*, and the most expensive communication with another town, 500 miles distant, does not exceed a thaler, or about 3s. for a conversation of three minutes.

AUSTRIA.—The Austrian Government has decided to purchase a building which has been used for some ten years by its Embassy at St. Petersburg. The Austrian Government, we believe, has its own buildings at Rome, Constantinople, Paris, Berlin, London, and Washington; and an Embassy is being built at the present moment at Pekin. The property at St. Petersburg formerly belonged to Mr. Polovzow.——An electric railway is to be built from Vienna to Baden, which is an inland watering-place, about an hour's rail from Vienna. Messrs. Schuckert, of Nuremburg, will be the contractors. The works will be partly on the track of a steam tramway, which runs in the direction of Baden. Another electric railway in Austria will be constructed in the Ruschka district.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. Philip E. Pilditch (Messrs. Pilditch, Chadwick, & Co.), architect, surveyor, and valuer, has removed from Parliament-street to No. 2 Pall Mall East.——Messrs. Fred Braby & Co., makers of constructional ironwork, of Fitzroy Works, London, will, on March 1, open a branch office at Ashton Gate Works, Coronation-road, Bristol.——The partnership between Mr. Edwin O. Sachs and Mr. Woodrow, architects, is terminated, Mr. Woodrow being about to practice separately, and Mr. Sachs continuing his practice at the former address of the firm, 11, Waterloo-place, Pall Mall.——A company has been formed to acquire, and has acquired and taken over as from July 1, 1896, the business lately carried on by Messrs. W. Gradwell & Co. as timber merchants, builders, and contractors, at the Hindpool Saw Mills and the Devonshire Dock Saw Mills and Creosoting Works, both in Barrow-in-Furness, together with the goodwill and buildings, machinery plant, &c., and the benefit of all trade contracts entered into by Messrs. W. Gradwell & Co. The business is now carried on as that of "W. Gradwell & Co., Limited." A few particulars as to the concern may be of interest. The Hindpool Saw Mills consist of about 18,400 square yards of land, with the permanent buildings thereon. These premises have been specially erected and fitted up with all the necessary machinery and plant for carrying on the business of timber merchants and contractors on a large scale. The creosoting business was purchased by Mr. Gradwell in 1892 from the executors of the late Alderman Gradwell, who had carried it on for a great number of years. The Devonshire Dock Saw Mills and Creosote Works consist of about four acres of land. These works are also fitted up with sheds, machinery and plant as saw mills and for creosoting sleepers, telegraph poles, and all descriptions of timber. Adjoining these works there are about four acres of land, with wharf accommodation; this land is used for storing timber. Both the Hindpool Works and the Devonshire Dock Saw Mills and Creosoting Works and adjoining yard are connected with the Furness Railway by sidings, and the latter have ample wharf accommodation on the Devonshire Dock.

CARPENTERS' HALL LECTURES.—The first of a series of lectures at Carpenters' Hall took place on Wednesday night. The lecturer, Professor Roger Smith, took for his subject "Our Ancient Cathedrals." The lecturer began by inviting his audience to make a hasty tour with him among our ancient cathedrals. That we might enjoy the full benefit of the journey he proposed to make a few introductory remarks upon cathedrals in general. The cathedral building period began after the year 1000; in that year the world was expected to come to an end, all building and trading was therefore at a standstill. The fateful year over, a fresh stimulus was given to every direction of life and movement. Cathedral churches sprang up on all sides. This movement was at its height in the thirteenth century, and it is this period that is characterised by more originality of design and poetry of feeling than any other before or since; it had neither the rude strength of the Norman nor the mechanical formality of the Perpendicular period. Nowadays it is impossible to understand the value our forefathers set upon the possession of these cathedral churches. The cathedral was then the poor man's school, picture gallery, museum—in fact, the centre of his artistic and intellectual, as well as his physical, life. The bishop's power was that of the greatest of the princes; the life and well-being of the district depended upon the magnificence of the monastic centre. In our time board schools, town halls, gigantic engineering feats, occupied the attention of the European people. Cathedrals are of interest to the enlightened only, and have ceased to be the home and centre of the political and social life of the nation. After examining a typical plan, and comparing individual features in each style with their successive developments, the lecturer concluded his interesting remarks with some beautiful slides showing the interior and exterior of our principal cathedral churches, starting in the northern counties with Durham and finishing with the Norman staircase at Canterbury. Many of the pictures were received with applause, especially that of Peterborough, the lecturer remarking that the only reasonable course of procedure in restoring the front being that decided upon. The lecture next Wednesday was announced to be upon "The Work of the Electric Current," by Prof. Fleming.

RICHMOND HILL. — The dispute between the Thames Conservancy and the Dysart Trustees as to the ownership of the riverside lands between Richmond and Teddington, which form so conspicuous a feature in the beautiful view from Richmond Hill, has now practically been settled by a compromise to which the Thames Conservancy has just given its assent. If accepted by the Dysart Trustees these conditions will preserve the neighbourhood for all time. The lands in dispute embrace an area of 17 a. 1 r. 34 p. The conservators propose that they shall retain a strip 32 ft. wide next the river for tow-path purposes, which will absorb 7 a. 2 r. 21 p., and that the remainder, consisting of 9 a. 3 r. 13 p., shall be conveyed to the Dysart Trustees. This proposal has, after negotiation with the Dysart Trustees, been embodied in an agreement, in which conditions have also been inserted reserving to the public rights of way over the lands, stipulating that no buildings shall ever be erected thereon, and that they shall always be left open and unenclosed. The trustees have also been in negotiation with the Richmond Town Council as to the selling or leasing to the Corporation of Petersham Meadows, another prominent feature in the view from Richmond Hill, and have intimated to the Corporation that whilst under their powers as trustees they could not sell, they were willing to give a lease of the large meadow of twenty-two acres for twenty-one years.—*Morning Post.*

EARTHQUAKES.—On the 12th inst., at the Royal Institution, Professor John Milne, F.R.S., delivered a lecture on "Recent Advances in Seismology." He pointed out that this science had so developed that we were now not only able to study the earthquakes which no one felt, but we had commenced to investigate their relations, of which there were many, with most promising results so far as geology was concerned. Of the earthquakes we got—and we had a thousand of them a year—half of them came from deep water. The ocean was really the home of our earthquakes. Twenty years ago their study was commenced in Japan, with the result that the seismology of that country had revolutionised the seismology of the whole world. As a consequence, too, methods of building in Japan had been entirely altered, so that houses erected on new principles stood, while their neighbours were shattered. The lecturer exhibited a seismic map of Japan, pointing out that it enabled the Japanese to analyse earthquakes, and to give them their proper value. Next he threw on the screen photographs of damage done in the Severn Valley by the recent shock. Chimneys of ordinary construction were, he pointed out, the first things to go. If any one had been on an elevation and could have looked down on the city of Hereford, he would have seen the chimneys going through kaleidoscopic movements—a wild dance, in fact—before they came down or became twisted. If they put a chimney up by itself it would stand, but if they put it in contact with something which did not vibrate in the same degree it was bound to go. To put a tie-rod to a chimney was as good as taking a pair of scissors and cutting off the chimney at the place where the tie-rod met it.

LYTE'S METALLIC STAIR-TREAD.—A sample of this stair-tread has been forwarded to us. It is formed of steel-cored lead wires about ¼ in. diameter, laid parallel to each other, and laced together by plain steel cross-wires, after which it is passed through rolls for the purpose of obtaining a smooth surface, while the cross wires prevent the lead being broken away. It seems calculated to give a good foothold (though, of course, this cannot be tested by a small sample), and to be durable, and it is of very neat appearance. Messrs. Easton, Anderson, & Goolden are the agents for it.

FORMATION OF A MASTER BUILDERS' ASSOCIATION, LONGRIDGE, LANCASHIRE.—An organisation entitled "The Longridge District Master Builders' Association," has been formed, and become affiliated with the Lancashire Federation of Building Trade Employers. Some twenty-four firms have joined the Association, the objects of which are to promote a good feeling in the trade; to disseminate information regarding trade matters; to obtain more equitable terms in certain cases between architects and builders in reference to contracts, and to enable the employers to deal with trade questions, and generally to safeguard their interests. Mr. J. T. Parker is the President; Mr. W. Almond, the Vice-President; Mr. T. Kay, treasurer; Mr. J. T. Sanderson, secretary. The trade generally is disturbed in consequence of various local rules, and one of these prevents the Longridge masters taking worked stone into Preston, a restriction which, however, does not apply to Preston builders taking stone to Longridge. Other districts have the same grievance, and the matter has been brought before the Lancashire Federation.—*Preston Herald.*

MANCHESTER SHIP CANAL.—The report for the half-year ending December 31, 1896, states that there has been on the average a steady and continuous increase in the volume of sea-going traffic, although the monthly returns naturally vary considerably as ships make long or quick voyages and the seasons of the various trades are late or early. The greater portion of the increased traffic has consisted of imports. The export trade is from special causes much more difficult to obtain in quantity. The Engineer's report as to works states that the dredging plant has been continuously engaged in the removal of silt and sewage sludge from the different reaches of the Ship Canal, and the depth of water has been maintained, although (partly as a result of the abnormally wet season) exceptional quantities of material have been deposited in the waterway. The works for the closing of the tidal openings have been proceeded with in accordance with the powers of the Act of Parliament obtained last Session; these works are now so far complete that tidal water will no longer flow into the Canal through the openings. The works required for the construction of the pontoon dock at Ellesmere Port, and for the removal of the dam outside the dock, have been completed. The pontoon was successfully moored in the new position in November last. A great improvement in the

waterway has been effected by the removal of the pontoon. At the Latchford Locks the steel gates, which were constructed to enable the upper gates of the 65-ft. lock to be removed and repaired, have been fixed in position, and the original greenheart gates are now being reconstructed on the slipway at Thelwall. Considerable additions have been made to the railway lines and sidings and to the paved roadways at the docks. Other works of a similar character, including new sidings at Mode Wheel, are in hand. The slopes of the Canal generally are in good condition.

ROYAL ACADEMY.—The days for receiving works for this year's Royal Academy Exhibition are—for paintings and drawings, Friday, Saturday, and Monday, March 26, 27, and 29; and for sculpture, Tuesday, March 30.

APPOINTMENTS OF SANITARY INSPECTORS.—The Local Government Board have sanctioned the appointments of the following sanitary inspectors:—Mr. E. T. D. Jordan in Shoreditch, Mr. E. Anthony in Paddington, and Mr. W. G. Auger in St. Pancras.

SURVEYORS AND AUCTIONEER'S CLERKS' PROVIDENT ASSOCIATION. — We have received the annual report of this Association up to December 31, 1896. Sixteen proposals were received during last year, of which thirteen were accepted. The whole of the funds show an increase, while the sick allowance payments have been less. The Committee have recently voted a subscription to All Saints Convalescent Home, Eastbourne, where a member recovering from illness (if not of an infectious character) may stay for three weeks free of charge.

THE TIMBER TRADES' BENEVOLENT SOCIETY.—The first meeting of the committee appointed to deal with the affairs of the Timber Trades' Benevolent Society, which was recently founded to commemorate the Diamond Jubilee of the Queen, was held on the 10th inst., at the Cannon-street Hotel, under the presidency of Mr. W. L. T. Foy, J.P. A special sub-committee was appointed to deal with the rules and regulations. Mr. Atlee, of Messrs. Druce & Atlee, was appointed hon. solicitor; and Mr. W. A. Hill, of 6, Moorgate-street, the secretary.

ELECTRICAL EXHIBITION IN NEWCASTLE.—The Electrical and Engineering and General Trades and Art Exhibition, held in buildings which have been erected in Northumberland-road, Newcastle, was opened on the 15th inst. by the Mayor.

THE FRONTAGE DISPUTE AT STOKE NEWINGTON.—On the 22nd inst. the work undertaken by the London County Council in carrying out the order of Mr. Lane, police magistrate, for the demolition of 7 ft. of a new building at the opening of Prince George-road from Stoke Newington-road, was practically completed. The building was erected 7 ft. beyond the building line as defined by the Superintending Architect of the London County Council, and after the foundations had been put in the Council summoned the builder to the North London Police-court, but the magistrate upheld the builder's case. Notice of appeal was given, and the case was ultimately decided in favour of the Council. In the meantime, however, the building had been completed, and fitted up in a most costly style. The case was remitted from the High Court, and Mr. Lane ordered the demolition of so much of the building as stood out beyond the building line—roughly speaking, 150 ft. by 7 ft. The order was served on the builder, but, though the Council allowed the matter to rest for twelve months, he made no move in the matter, and the Council undertook to do the work themselves. As the structure now stands, the 7 ft. appear to have been cleanly cut off from end to end. Rafters and iron girders have been cut exactly to the building line. The depth of the structure is now only 13 ft., and it is said to be entirely useless for any purpose. It has been shored up, but as one side of the whole length is open, persons experienced in these matters have expressed the opinion that a gale of wind would complete the work of demolition. It is anticipated that the rest of the building will be removed under the Dangerous Structures Act.—*Morning Advertiser*.

CAPITAL AND LABOUR.

WAGES IN THE LOCAL BUILDING TRADE, MANCHESTER.—On the 15th inst. the master bricksetters in the Swinton, Pendlebury, Moorside, and Clifton districts conceded an advance of a halfpenny per hour to their bricksetters, making the present rate of wage 10d. per hour. The labourers have also sought an advance from 6½d. to 7d. per hour. From inquiries, however, the employers have ascertained that no such rate obtains anywhere round Manchester, and the notices have been withdrawn.

LEGAL.

LITIGATION OVER ANCIENT LIGHTS IN LINCOLN'S INN.

THE case of Debenham *v.* Forster, Frere, & Co, which occupied the attention of Mr. Justice Stirling in the Chancery Division for several days, concluded on the 18th inst. The facts sufficiently appear from the judgment.

His Lordship, in giving judgment, said that the action was brought to obtain an injunction to restrain an alleged injury to the plaintiffs' ancient lights, the plaintiffs being the owners and lessees of No. 27, Whetstone Park, Lincoln's Inn Fields, and also the lessees of the next house, No. 26, the defendants being owners and occupiers of a house on the opposite side of Whetstone Park, and known as No. 28, Lincoln's Inn Fields. In the autumn of 1895 the defendants proposed to pull down the rear part of their building and to rebuild it, no objection being taken on the part of the plaintiffs down to November 5, 1895, although a hoarding had been erected on the work, and scaffolding had been put up when the rebuilding began some time in the month of September. On November 5, however, complaints were made by the plaintiffs which led to an interview which took place on that day between Mr. Herbert Dyball, the architect for the plaintiffs, and Mr. Eustace Frere, the architect for the defendants. In the course of that interview the height at which the building was then raised was ascertained, and the future height to which it was to extend was agreed on. But, unfortunately, the two gentlemen did not agree in their account of the facts as they then stood. According to the evidence of Mr. Dyball—which was borne out by the memorandum which he made at the time—the then height of the defendants' building was 26 ft. 6 in.; but according to the evidence of Mr. Frere it had reached 6 in. higher. Both parties had agreed that it was intended that the height of the building should not go beyond 37 ft. 2 in., and that that height was not ultimately attained. All that had to be done was to complete the building by putting a roof on the flat which stood immediately behind the rear wall, and which, as the evidence stood, would have meant an addition of 4 in. to the height. Speaking roughly, the breadth of Whetstone Park was about 16 ft., the roadway getting a little narrower as it went westward. The plaintiffs complained that six windows had been interfered with—viz, two on the ground floor, and two in the basement of No. 27, and two on the ground floor of No. 26. He considered that the evidence showed undoubtedly that there was, mathematically a certain loss of light to the two windows on the ground floor of No. 27; but the question was, Had the plaintiffs made out an actionable wrong? On that point the evidence of the experts did not help him at all. Not one of the experts, with the exception of Mr. Dyball, senior—who had admitted that he had not been on the *locus in quo* for many years—was able to give any comparison as to the state of the light as it was enjoyed before, and as it was enjoyed after the alterations complained of. At the present time both Nos. 26 and 27 were occupied by a firm of printers, Messrs. Ford, Chapman, & Co. The only direct evidence as to the diminution of light as to those two windows was given by a workman named Elliott, who was employed in sampling, matching, and sorting the paper received. The sorting took place principally in the basement of No. 27, the matching and sampling taking place in the ground floor. Elliott's evidence was to the effect that since the alterations of the defendants he had noticed a difference in the light coming to the ground floor of No. 27. That witness had said that the diminution in light as to those two windows was considerable, and that he had now to go to the door to match his light tints, instead of being able to do that at the cupboard, as he had done before the alterations. The question was, was that a serious diminution in the light? The conclusion he (his Lordship) came to with regard to those windows was that there had been an actionable injury. The evidence given with regard to the windows in the basement of No. 27, and the ground floor of No. 26, seemed to be much weaker. In his opinion it was not a case for a mandatory injunction, and the only remedy to which the plaintiffs were entitled was that of damages. He was asked to assess the damages on the estimate of expert witnesses called by the plaintiffs, who assessed the damages suffered by the plaintiffs at from 200*l.* to 250*l.* His Lordship's view was that those witnesses took an exaggerated view of the injury to the plaintiffs. He did not agree with those witnesses that there was any substantial injury done to the basement windows, and he thought that the injury done to the ground floor of No. 27 was very much less than what they considered it to be. The question was what course ought to be taken. It seemed to him that really he had no materials before him on which he could assess the damage to the ground-floor windows of No. 27, and that the proper course was to direct an inquiry as to the damages as to that, the costs of the inquiry to be reserved. He thought that the right order would be, in the circumstances, to give the plaintiffs the costs of the action, except so far as they had been increased by the claim in respect of the windows in the basement of No. 27, and the windows on the ground floor of No. 26.

Order accordingly.

LITIGATION THROUGH A LANDSLIP.

THE case of Sharpe *v.* Harman came before the Court of Appeal, composed of the Master of the Rolls and Lords Justices Lopes and Chitty on the 19th inst., on the appeal of the defendant from the judgment of Mr. Justice Mathew in the Queen's Bench Division. The action was brought by the plaintiff, a landowner at Hastings, to recover from the defendant, an adjoining landowner, damages for injury to his property, which was caused by a landslip. It appeared that the plaintiff owned some land on a sloping cliff, the defendant being the owner of the land on the cliff just above. In 1859 the plaintiff's predecessor in title built two houses on his land, called Nos. 18 and 19, St. Mary's Terrace, and excavated the soil at the back so as to provide courts for the houses, and built a high wall against the cliff, to prevent the cliff from falling. In 1872, the defendant's predecessor in title built houses on his land above, and for that purpose excavated the soil at the back of his land and built the houses on the land so excavated. The soil excavated amounted to about 70 tons, which he put upon the land in front of his houses, and built a retaining wall, to prevent the earth from slipping down. The base of the wall was made of concrete, and the foundations were built 3 ft. into the natural ground, being sunk about a foot below the top of the plaintiff's wall, but at one side of it. On Dec. 1st, 1895, a landslip occurred at night, the defendant's wall coming down, and carrying with it part of the cliff, and nearly all the plaintiff's wall being destroyed. Mr. Justice Mathew held, upon the evidence given, that the defendant's wall ought to have been built into the solid rock, and that the defendant was therefore liable, and he gave judgment for the plaintiff for 150*l.* damages. The defendant now appealed.

At the conclusion of the arguments of counsel the Master of the Rolls in giving judgment said that in his opinion the act of the defendant, without any default on the part of the plaintiff, had caused part of the land of the defendant to fall on the plaintiff's land. In his opinion, therefore, the appeal must be dismissed.

The other Lords Justices concurred, and the appeal was accordingly dismissed with costs.

Mr. Witt, Q.C., Mr. R. M. Bray, and Mr. C. F. Lloyd appeared for the appellant; and Mr. Crump, Q.C., and Mr. Clavell Salter for the respondent.

MEETINGS.

FRIDAY, FEBRUARY 26.

Institution of Civil Engineers (Students' Meeting).—Paper to be read:—"Rockers and Expansion-Bearings as applied to Girders of Short Span," by Messrs. A. F. Baynham and F. B. H. Dobree. 8 p.m.

Royal Institution. — Lieut.-Col. C. R. Conder on "Palestine Exploration." 9 p.m.

SATURDAY, FEBRUARY 27.

Builders' Foremen and Clerks of Works' Institution.—Annual Dinner, King's Hall, Holborn Restaurant. 6.30 p.m.

Edinburgh Architectural Association. — Visit to North British Distillery.

MONDAY, MARCH 1.

Royal Institute of British Architects.—(1) Special General Meeting to elect the Royal Gold Medallist for the current year; (2) the Ninth General Meeting (business) for the election of candidates for membership. 8 p.m.

London Institution.—Dr. H. Lewis Jones on "The History of Röntgen's X Rays and their Practical Applications," illustrated by experiments. 5 p.m.

Society of Engineers.—A paper entitled "Notes on the Proposed By-laws of the London County Council with respect to House Drainage," to be read by Mr. J. P. Barber. 7.30 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Dr. Arthur Newsholme on "Nature of Nuisances, including Nuisances the Abatement of which is Difficult." 8 p.m.

Society of Arts (Cantor Lectures).—Mr. C. F. Cross, F.C.S., on "The Industrial Uses of Cellulose." III. 8 p.m.

Leeds and Yorkshire Architectural Society.—7.30 p.m.

Liverpool Architectural Society.—Paper by Mr. W. E. Willink, entitled "Mediæval Trade Guilds." 6 p.m.

TUESDAY, MARCH 2.

Society of Arts (Applied Art Section).—Mr. Matthew Webb on "Gesso." 8 p.m.

Institution of Civil Engineers.—Papers to be further discussed:—(1) "The Main Drainage of London," by Messrs. J. E. Worth and W. Santo Crimp; (2) "The Purification of the Thames," by Mr. W. J. Dibdin. 8 p.m.

WEDNESDAY, MARCH 3.

Royal Archæological Institute.—Mr. H. P. Fitz-Gerald Marriott on "The Portraits of Pompeii." 4 p.m.

Carpenters' Hall, London Wall.—Professor J. A. Fleming on "The Work of the Electric Current," with lantern illustrations and experiments. 8 p.m.

British Archæological Association.—Mr. Thos. Blashill on "Some Seventeenth Century Records of Absentees from Church." 8 p.m.

Society of Arts.—8 p.m.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at the L.C.C. Common Lodging House, Parker-street, Drury-lane. 3 p.m.

Liverpool Engineering Society.—Mr. W. Brodie on "Dock Gates." 8 p.m.

Edinburgh Architectural Association.—Mr. Alexander Drew, C.E., on "The Practical Designing of Iron and Steel Roofing." VI. 8 p.m.

Edinburgh Architectural Society.—Mr. R. S. Lorimer on "The Artistic Work and Influence of William Morris." 8 p.m.

THURSDAY, MARCH 4.

Society of Antiquaries.—Election of Fellows. 8.30 p.m.

Society of Arts.—8 p.m.

Royal Institution.—Professor Percy Gardner, F.S.A., on "Greek History and Extant Monuments." I. 3 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Dr. J. F. J. Sykes on "Objects and Methods of Inspection." 8 p.m.

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Police Station, Court House, &c.	Halifax T.C.....	50*l.* and 25*l.*	April 30

CONTRACTS.

Nature of Work or Materials	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered
*About 590,000 Wood Blocks	Ipswich Corporation..	E. Buckham, Town Hall..	Mar. 1
*Underground Conveniences	Southend-on-Sea Corp.	H. Harlock, Clarence-rd. Southend	do.
*Street Improvements Works	Bromley U.D.C.....	J. H. Norman, Council Offices, Bromley	Mar. 2
Additions. &c. to Schools, West-lane, Gomersal, Yorks	Committee	J. W. Burrows, Archt. Bristol.....	do.
Four Houses, Belfield-road, Rochdale	M. Halliwell.....	Bamford & Brocklebank, Surv, 58, Yorkshire-st.	do.
Additions, St. George's Church, Folla Rule, Aberdeen	.....	A. Clyne, Archt. 123, Union-street, Aberdeen	do.
Nine Houses and Two Shops, Cemetery-road, &c. Westtown, Dewsbury	.....	J. Barton & Son, Archt. Halifax-road, Dewsbury	Mar. 3
Brick Paving, Portslade.....	East Sussex C.C.....	H Card, County Surv. County Hall, Lewes ...	do.
Pipe Sewer, &c.	Burgess Hill (Sussex) U.D.C.....	A. F. Hardwick, Council Offices	Mar. 4
Retaining Wall, River Medlock, Sackville-street	Manchester Corp	City Surv. Town Hall	do.
Show Rooms, Cattle Market, Gloucester	.....	R. Read, C.E. Guildhall, Gloucester	do.
Seven Houses, Northfields Estate, Dewsbury	.....	J. Kirk & Sons, Archit. Dewsbury	do.
Schoolhouse, Droumreague, Macroom, Ireland	.....	Rev. W. O'Donovon, Kilnamartyra, Macroom	do.
Additions to Parish Church, Lesmahagow, N.B	.....	A. N. Paterson, Archt. 136, Wellington-st. Glasgow..	do.
Drainage Works, Kilpeider, Ireland	Rathdrum Union	B. Manning, Board Room, Workhouse, Rathdrum	Mar. 5
*Alterations, Municipal Offices.....	Rotherham Corp.	R. J. Lovell, 46, Queen Victoria-street, E.C.	do.
Kerbing, Channelling, &c.....	Edinburgh Corp.....	Burgh Engr. Police Chambers	Mar. 6
Rebuilding School, Ogden, Newbey near Rochdale	.....	E. J. Clegg, 160, Huddersfield-road, Newbey ..	do.
Seven Houses, Chelmsford	.....	F. Whitmore, Archt. 17, Duke street	do.
Business Premises, Colchester.....	.....	W. C. Street, Archt. 7, Victoria-st. Westminster	Mar. 8
Cottage and Retort House at Gasworks, Grange-over-Sands	Gas and Water Co. ..	H. Hibbert, Broughton-grove, Grange-over-Sands	do.
Factory and Laundry, Great James-street, Londonderry	Hogg & Mitchell.....	W. Barker, Archt. 25, Orchard-st Londonderry ..	do.
*Broken Guernsey Granite, &c.....	Rotherhithe Vestry ..	J. J. Stokes, Vestry Hall, Lower-road, Rotherhithe	do.
*Works and Materials	Barnes U.D.C.....	G. B. Tomes, Council Offices	do.
Surveyor's Materials	Bridgewater Corp.....	Boro' Surv. Town Hall ...	Mar. 9
Additions to Christ Church, Waterloo, Liverpool	.....	Austin & Paley, Archt. Lancaster	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Church Restoration, Gaerwen, Anglesey, N. Wales.....	.....	P. S. Gregory, Archt. Bangor..... ..	Mar. 10
*Boring and Sinking Well	Coalville U.D.C.....	J. B. Everard, 6, Millstone-lane, Leicester	do.
*Fittings, &c. at Laundry	Holborn Union	A. Saxon Snell, 22, Southampton Buildings, W.C.	do.
Brewery, Stabling, &c. Windmill Hill, Northowram, Halifax	.....	J. F. Walsh, Archt. Halifax	Mar. 11
*Kerbing and Making-up Streets	Cromer U.D.C.	A. F. Scott, Church-street, Cromer	do.
*Laboratory	Essex C.C.....	County Offices, 78, Duke-street, Chelmsford	do.
*Station, Felixstowe.....	G.E.Ry. Co.	The Engineer, Liverpool-street Station, E.C. ..	Mar. 12
Additions to Workhouse	Gainsborough Union..	Eyre & Southall, Archt. Gainsborough	Mar. 15
*Sewerage Work	Sidmouth U.D.C.	Council Offices	do.
*Sewage Farm Works	Burton-on-Trent Corp.	J. E. Swindlehurst, Boro' Engineer	Mar. 17
Infirmary	Mansfield (Notts) Union	R. F Vallance, Archt. Mansfield	do.
Wesleyan Church, Ulverston	Committee	T. Birkett, 20, Market-st.	Mar. 18
*Sewers	Lewisham Bd. of Wks.	Board of Works Office, Catford, S.E.	Mar. 22
*Railway, Reservoir Filter Beds, &c. ..	Birmingham Corp. ..	J. Mansergh, 5, Victoria-street, S.W.	Mar. 31
*Infirmary, Nurses' House, Porter's Lodge	Kingston Union	W. H. Hope, Union Offices, Portsmouth-road, Kingston-on-Thames	No date
Additions to John-street Tavern, Rochdale	Phœnix Brewery Co...	G. A. Hammond, Archt. Rochdale	do.
*Church and Schools, Chelmsford	.....	Gordon, Lowther, & Gunton, Finsbury House, E.C.	do.
Granite road-metal, &c.....	East Elloe (Lincs) R.D.C.....	R. P. Mossop, Clerk to Council, Holbeach	do.
Shops and Offices	Oswaldtwistle Co-op. Soc.	Haywood & Harrison, Archt. Accrington.....	do.
Store and Seven Houses, Station-road, Oxenhope, Yorks.....	Uppertown Indus. Co-op. Soc. Ltd...	J. Haggas, Archt. Northstreet, Keighley	do.
Schools	Dukinfield Sch. Bd...	Eaton, Sons, & Cantrell, Archt. Ashton-under-Lyne	do.
Villa, Old-road, Dukinfield	T.W. Stansfield	do.	do.
Seven Houses, Blackhall Mill, Ebchester	.....	Badenoch & Bruce, Archt. 55, Pilgrim-street, Newcastle-on-Tyne	do.
Church Additions, Free Church, Poynton, near Stockport	.....	F. W. Dixon, Archt. Trevelyan Bldgs. Manchester	do.
Residence, Denton, Lancs.....	....	J. H. Burton, Surv. 2, Guide-lane, Hooley Hill	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Clerk, also Draughtsman for Surv. Dept.	Poplar Bd. of Works..	Clerk, 120*l.* rising 150*l.*; Draughtsman 150*l.* rising to 200*l.* per annum	Mar. 1
*Valuer to Assessment Committee	Richmond Union	135*l.* per annum	do.

Those marked with an asterisk (*) are advertised in this Number. *Competitions, p.* iv. *Contracts, pp.* iv. vi. & viii. *Public Appointments, pp.* xvi. & xix.

Institution of Civil Engineers.—Students' Visit to the Works of the Incandescent Electric Lamp Company, Brook Green, Hammersmith. 2.30 p.m.

Society for the Encouragement of the Fine Arts.—Mr. F. H. Evans on "Canterbury and Ely Cathedrals," with limelight illustrations. 8 p.m.

London Institution.—The Rev. Canon Benham on "Cheapside," illustrated. 6 p.m.

FRIDAY, MARCH 5.

The Architectural Association—Dr. F. S. Granger on "Greek Sculpture and Greek Legend," with lantern illustrations. 7.30 p.m.

SATURDAY, MARCH 6.

The Architectural Association.—Spring Visit to Her Majesty's Theatre, Haymarket. 2.30 p.m.

Sanitary Institute (*Demonstrations for Sanitary Officers*).—Inspection at the Marylebone Stoneyard, Richmond-street, Edgware-road, W. 3 p.m.

Sanitary Inspectors' Association. — Annual Dinner, Holborn Restaurant. 6 p.m,

Institution of Junior Engineers. — Conversazione at the Westminster Palace Hotel. Reception at 7.30 p.m. by the President, Mr. A. R. Binnie, M.Inst.C.E., and Mrs. Binnie.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

1,680.—FIRE-GRATES: *W. Johnson.*—The inventor proposes to construct cottage and bedroom fire-grates so that they can be either used as open grates or converted into cooking ones. For this purpose he provides grates with a movable "cooking plate" at a suitable height over fire, and also a hinged plate to top front bar of grate, provided with a draught-plate or door. The flue is so formed as to utilise all the heat of the fire.

2,852.—BRICK-DRYING CHAMBERS: *E. Thomas.*—This invention has for object the means of heating brick kilns by steam or hot water. Walls of kiln are constructed either hollow or traversed by channels, so that the pipes for heating can pass around interior. These are in connexion with a steam boiler or the exhaust pipe of a steam-engine. Floor (composed of a porous composition) is laid on brickwork, so as to leave hollow spaces to admit steam.

3,004.—PREVENTION OF PIPES BURSTING BY FREEZING: *W. H. Le Roy.*—The inventor empties pipe from main to house by a bib-cock inserted at the outlet end of the valve controlling the service from the main. Freezing and bursting of pipes is thus prevented by drawing off all water contained in pipes beyond the valve controlling the supply from the main.

3,972.—ARTIFICIAL STONE: *S. Neffgen.*—The inventor takes slaked lime containing as little water as possible, and mixes it with quartz sand, and, if necessary, with argillaceous colouring matter in suitable proportions. The mixture is moulded and the blocks placed in a heating chamber, heated by steam or hot air. Temperature is then raised to about 50 deg. C in first five or six hours. Heat is slowly raised to about 80 deg. C, reaching this point after twelve hours, and maintained for two or three hours. Temperature is then rapidly raised to 90 deg. C, and the heat maintained for four or six days, according to size of blocks. This process causes the formation of a smooth and solid layer of calcium silicate.

4,597.—WATER WASTE-PREVENTING FLUSHING APPARATUS: *S. S. Hellyer.*—The inventor provides a duplex syphon arrangement, the shorter legs being situated on the flushing cisterns. The other legs descend and join each other, and both merge into the descending pipe by which the flushing water passes from the cistern and syphons to the closet pan, &c. One of the inlet legs of the syphons in the cistern is provided with a valve, which can be raised in the leg and operated by hand, foot, &c., with the result that both syphons act simultaneously to discharge the water from the cistern to the place to be flushed.

5,034.—CHIMNEY COWLS: *F. Rogers.*—The inventor contracts top of chimney or shaft, and supports a hood thereon by suitable arms, the top of this hood being also contracted. In turn this hood supports a helmet by means of arms. Lower portion of helmet is made taper, and joins a cylindrical portion of approximately the same diameter as the upper part of hood. Upper portion of helmet also contracted, and furnished with a perforated ring at its orifice. Cowl may consist of any material.

6,683.—DOMESTIC FIRE-GRATES: *I. Parkinson.*—The inventor hinges the front bars of the grate to one or both sides, so that they can be swung out on their pivots for the purpose of cleaning, moving live coals or cinders from grate, &c.

18,745.—SEWER GAS DESTROYER: *W. Egginton.*—The inventor's apparatus comprises (1) a portable engine for driving the fan, (2) a sewerage gas extractor and destructor, (3) a disinfector, (4) air-proof mats, and (5) air-proof drop-plates. The gas extractor and destructor is a metal cylinder, which is placed directly over the manhole. In the extractor are placed a fan, and fire-bars for a fire near the top of same. Disinfector is also a metal cylinder, with a bottom of fire-bars, and a perforated shelf for disinfectants, and is thoroughly air-tight. When apparatus is in use in road where defective drainage has been found, the extractor is placed over first manhole, the drop-plates are fixed at all points in the section of sewer being treated, so as to isolate it; the mats are placed over the covers of all the manholes between first and last; and the disinfector is then placed over shaft of last manhole, with the result that the whole of the sewer gas is under control and can be thoroughly dealt with.

21,886.—WINDOW-SASH ATTACHMENT.—*A. J. Bolles and Another.*—The inventors claim in connexion with ordinary sash windows, the combination of vertically movable stiles, mounted in the spaces formed by the usual beads, and provided with counter-balanced weights, which are secured by plates, which plates are provided with recesses in their upper sides and inwardly directed shoulders, behind which are placed blocks, with which are connected cords or chains, which are also connected with said weights, said stile and bars being provided with longitudinal grooves, in which cords are placed. Various modifications of the invention are described.

NEW APPLICATIONS FOR LETTERS PATENT.

FEBRUARY 8.—3,266, R. Leftwich, Closet-seats.—3,272. G. Knowles, Valve Ventilating Manhole-cover for House Drains and Sewers.—3,310, S. Maffey, Flushing Cisterns.—3,345, C. Lucke, Presses for Forming Artificial Stones, Slabs, Tiles, &c.

FEBRUARY 9.—3,436, W. Smith, Chimney-pots.—3,463, T. Kilner, Soil, Rain, and other like Pipes.

FEBRUARY 10.—3 531, J. Wright, Waste or Slop-water Closets.—3,571, A. Van der Vijgh and Others, Fireproof Buildings.—3,579, B. Russell, Glass Lens for Pavements or Stall-board Lights.—3,585, J. Whittaker, Builders' Scaffolding.

FEBRUARY 11.—3,650, A. Fry, Watertight Metal Bar for Glass Roofing.—3,652, H. Darrah, Ceiling Roses, &c.—3,684, M. Spear, Supporting and Guiding Sliding Doors.—3,694, J. Hamblet and J. Stanford, Construction of Walls to enable ferns and other plants to be grown thereon, and in bricks for building the walls.

FEBRRARY 12.—J. Farley, Joints of Earthenware Pipes, &c.—3,767, D. Pont, Mortising Machines.—3,784, W. Turner, Graining Tool.

FEBRUARY 13.—3,851, M. Hall, Floors of Rooms and Buildings.—3,880, H. Gibbon and W. Tyrer, Windows and Window Frames.——3,883, J. Shanks, Cisterns, Sinks, Baths, &c.—3,889, F. Saniter, Imitation Tiles on Metal.—3,917, R. Silverwood, Sliding Window Sashes and Frames.—3.952, C. Archer, Fastening Joists, Girders, &c., to each other.—3,960, H. Hauser, Rotating Ventilators or Fans.—3,977, W. Bryson, Sash Fastener.

PROVISIONAL SPECIFICATIONS ACCEPTED.

26,570, M. Adams, Channel Bends.—312, R. Ewing, Jointing of Iron and other Metal Pipes.—545, E. and L. Richards, Flushing Cistern Apparatus and Fittings.—729, H. Phillips and S. Wickens, Vitreous Enamelled Cast Metal as Door Furniture.—1,171, J. Moore, Regulation and Fastening of Window Sashes and Frames.—1,322, Tonks (Limited) and J. Whiting, Spring Hinges and Door Springs.—2,047, W. Beielstein, Flushing Apparatus with Movable Syphon for Water-closets.—2,164, W. Drummond, Chimney-pot.—2,220, G. Jennings and Others, Lavatory, Bath, and other Valves.—2,244, Sir J. Smith, Fire Grates.—2,257, W. Bray, Chimney Tops, &c.—2,302, W. Hewitt, Tiles.—2,594, H. Jenkins and W. Addis, Chimney Cowls, Ventilators, &c.—2,634, W. Dunn, Gate.—2,689, G. Ward, Chimney and Ventilating Shaft Top Down-draught Preventer and Wind Guard.—2,703, T. Drummond, Chimney Cowls and Ventilators.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

5,079, F. Newman, Chisels.—5,257, F. O'Donnell, Syphon Flushing Cisterns.—6,460, J. Mearns, Taper Bend Pipe for House Drains.—27,954, J. Pennycuick, Ventilated Window Lights.—27,955, J. Pennycuick, Vault Lights.—29,489, W. Durrant, Gully, Grease or Like Traps.—302, A. Hayward, Window Shutter Fasteners.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

January 28.—By MULLETT, BOOKER, & CO.

Hyde Pk.—Marlborough Gate, f.g.r. 105*l.*, reversion in 77¼ yrs.	£3,550
Marlborough Gate, f.g.r. 30*l.*, reversion in 77½ yrs.	900

By NEWBON, EDWARDS, & SHEPHARD.

Marylebone.—39, 40, and 41, Stafford-st., u.t. 23 yrs., g.r. 54*l.*	635
Highbury.—122, Highbury New Pk., u.t. 52½ yrs., g.r. 12*l.* 12s., e.r. 100*l.*	1,250

Barnsbury.—15, Pulteney-st., u.t. 22½ yrs., g.r. 4*l.*, r. 33*l.* 130
Bow.—Merchant-st., f.g.r. 12*l.*, reversion in 62 yrs. 350
Stratford.—19, 21, 23, and 25, Arundel-rd., u.t. 8½ yrs., g.r. 20*l.* 730

By WILLATS & Co.

Kentish Town.—85 and 87, Islip-st., u.t. 53½ yrs., g.r. 16*l.* 16s., r. 76*l.* 680

By S. B. CLARK & SON.

Marylebone.—11, Duke-st., u.t. 10½ yrs., g.r. 20*l.*, r. 90*l.* 450
20 and 21, Union-st., u.t. 3¼ yrs., g.r. 24*l.*, r. 126*l.* 230
Kentish Town.—89, Bartholomew-rd., with workshop, u.t. 64½ yrs., g.r. 7*l.*, r. 66*l.* 480
Hammersmith.—Andover-rd., York Cottage, u.t. 71½ yrs., g.r. 6*l.*, r. 34*l.* 255

By STIMSON & SONS.

Southwark.—142 and 144, Borough High-st., f., e.r. 160*l.* 2,245
1 to 17, 17a, and 18, Eve's-pl., f., r. 526*l.* 10s. ... 3,450
Bermondsey.—Black Swan-yd., freehold factory premises, r. 125*l.* 2,000
Black Swan-yd., freehold warehouse and stabling, r. 105*l.* 1,510
Walworth.—324, Walworth-rd., f., r. 100*l.* 2,160
Stockwell.—Hubert-grove, f.g.r. 24*l.*, reversion in 83½ yrs. 690
Stepney.—47, Rectory-sq., u.t. 67¼ yrs., g.r. 5*l.*, e.r. 36*l.* 350
Lambeth.—16 and 18, Westminster Bridge-rd., u.t. 22 yrs., g.r. 18., e.r. 95*l.* 500
Streatham.—Lanercost-rd., "Tamar," u.t. 92½ yrs., g.r. 8*l.*, e.r. 50*l.* 220

By BOYTON & PEGRAM (at Walham Green).

Fulham.—1 to 7, St. Peter's-ter., f., r. 256*l.* 2,320

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard &c.

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G. ton	8/0/0	0/0/0
Teak, E.I....load	11/0/0	16/0/0
Sequoia, U.S.ft.cu.	1/9	2/0
Ash, Canada load	2/15/0	4/0/0
Birch, do.	3/15/0	5/10/0
Elm, do.	3/10/0	4/15/0
Fir, Dantsic, &c..	2/15/0	4/15/0
Oak, do.	2/15/0	3/15/0
Canada	5/0/0	6/0/0
Pine, Canada red	0/0/0	0/0/0
Do. Yellow	2/5/0	4/5/0
Lath, Dantsic, fath	4/10/0	5/10/0
St. Petersburg..	5/0/0	6/10/0
Wainscot, Riga, &c., log	2/10/0	4/15/0
Odessa, crown....	2/10/0	4/15/0
Deals, Finland 2nd & 1st std 100	9/0/0	9/10/0
Do. 4th & 3rd...	9/0/0	9/10/0
Do. Riga	7/10/0	8/10/0
St. Petersburg, 1st yellow... .	11/0/0	23/10/0
Do. 2nd yellow	10/0/0	11/0/0
Do. white	9/10/0	11/10/0
Swedish	9/0/0	16/10/0
White Sea.....	10/10/0	17/0/0
Canada, Pine 1st	20/0/0	23/0/0
Do. do. 2nd	14/10/0	16/0/0
Do. do. 3rd, &c.	7/0/0	10/10/0
Do. Spruce, 1st.	9/10/0	11/10/0
Do. do. 3rd and 2nd	7/15/0	9/0/0
New Brunswick	7/0/0	10/10/0
Battens, all kinds	5/0/0	20/0/0
Flooring boards, sq., 1 in. prep. 1st	0/9/0	0/16/0
Do. 2nd	0/7/6	0/12/6
Other qualities—	0/5/9	0/7/0
Cedar, Cuba, ft.	/4½	/5
Honduras, &c.	/4	/5
Mahogany, Cuba	/4½	/6
St. Domingo, cargo av.	/4½	1/3
Mexican, do. do.	/4	/5
Tobasco, do. do.	/5	/7
Honduras, do.	/5	/6½
Box, Turkey, ton	4/0/0	25/0/0
Rose, Rio.....	7/0/0	14/0/0
Bahia	6/0/0	25/0/0
Satin, St. Doming.	0/0/7	0/1/0

TIMBER *(continued)*.		
Satin, Porto Rico	0/0/7	0/1/6
Walnut, Italian ..	0/0/3	0/0/7
METALS.		
Iron—Pig, in Scotland .....ton	2/6/0½	0/0/0
Bar, Welsh, in London.....	5/15/0	5/17/6
Do. do. at works in Wales	5/10/0	5/12/6
Do. Staffordshire, in London.....	5/15/0	6/10/0
COPPER—British cake and ingot	54/10/0	55/0/0
Best selected ..	55/5/0	55/15/0
Sheets, strong..	61/10/0	61/10/0
Chili bars	51/7/6	0/0/0
YELLOW MTL lb.	0/0/5	0/0/5½
LEAD—Pig, Spanish ....ton	11/13/9	11/15/0
English com. brands	11/16/3	11/18/9
Sheet, English 6 lbs. per sq. ft. and upwards ..	13/0/0	0/0/0
Pipe.....	13/10/0	0/0/0
ZINC—English sheet.....ton..	20/10/0	0/0/0
Vieille Montagne	21/10/0	0/0/0
Spelter	17/12/6	0/0/0
TIN—Straits	61/7/6	0/0/0
Australian.....	62/17/6	63/7/6
English Ingots..	65/10/0	66/5/0
Banca.....	62/0/0	0/0/0
Billiton	59/15/0	60/0/0
OILS.		
Linseed .....ton	15/0/0	0/0/0
Cocoanut, Cochin	27/15/0	0/0/0
Do. Ceylon	24/0/0	0/0/0
Palm, Lagos.....	24/10/0	0/0/0
Rapeseed, English pale	27/10/0	27/15/0
Do. Brown	27/0/0	27/10/0
Cottonseed ref. ..	15/17/6	16/10/0
Oleine.....	18/10/0	19/10/0
Lubricating U.S.	0/6/3	0/7/6
Do. black	0/4/9	0/6/6
TAR—Stockholm barrel	22/0	0/0/0
Archangel.....	0/12/6	0/0/0
Turpentine....ton	22/15/0	20/17/6

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. N.B.—We cannot publish Tenders unless authenticated by the name and address of the sender: and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under £100, unless in some exceptional cases and for special reasons.]

ABERDEEN (N.B.).—Accepted for the execution of road works, for the Town Council. Mr. Wm. Dyack, Burgh Surveyor, Town House, Aberdeen:—

Menzies-road—Macadamising, &c.

Alex. Leith, 50, Holburn-street, Aberdeen £910 3 2

Walker-place—Macadamising, &c.

Alex. Leith, 50, Holburn-street, Aberdeen £174 16 8

BATH.—For laying water-mains, &c., for the Waterworks Committee. Mr. Charles Gilby, Engineer, Guildhall, Bath:—

Stephen Ambrose....	£140 14 0	William Birth	£122 8 2
Wills & Sons	136 5 4	Charles Haines*	118 16 1

[All of Bath]
* Accepted.

BEDFORD.—Accepted for additions to premises. Messrs. Usher & Anthony, architects, Bedford:—
Geo. E. Fathers, Bedford £969 15

BEDFORD.—Accepted by the Corporation of Bedford for underground convenience:—
Geo. E. Fathers, Bedford £346

BRECHIN (N.B.).—For paving carriage way, Witchden-road, for the Commissioners. Mr. Wm. Eggie, Burgh Surveyor, Brechin:—

P. Tawse	£1,034 6 0	A. Leith	£789 8 0
J. McAdam & Sons	1,022 3 6	J. Leith, jun., Aberdeen*	879 1 0
P. Bain	972 2 0		
Martin & Macfarlane	930 2 9		

* Accepted.

BRIGHTON (Sussex).—For the supply of granite kerb and 400 tons granite pitchers, for the Corporation. Mr. F. J. C. May, Borough Engineer, Town Hall, Brighton:—

	Edge Curb, 10 in. by 6 in. per foot.	Flat Curb, 12 in. by 6 in. per foot.	Pitchers, 6 in. by 4 in. per ton.
	s. d.	s. d.	s. d.
Blichfeldt & Co.	1 2½	1 2	24 6
Coopers, Limited	1 2½	1 1½	25 0
Goodchild & Co.*	1 3½	1 3½	25 0
A. & F. Manuelle*	1 7½	1 5½	26 6
"	1 3½	1 3½	33 3†
E. J. Van Praagh & Co.*	1 3½	1 3½	33 0
Croft Granite Co.	1 7	1 4½	27 6

* Accepted.

A. & F. Manuelle, 101, Leadenhall-street, E.C.:—
3,000 ft. of 12 in. by 6 in. flat Guernsey curb, at 1s. 7½d.
4,000 ft. of 10 in. by 6 in. edge Guernsey curb, at 1s. 5½d.
150 tons 6 in. by 4 in. Guernsey pitchers, at 33s. 3d.

E. J. Van Praagh & Co., 6, East India-avenue, E.C.:—
5,000 ft. of 12 in. by 6 in. flat Norway curb, at 1s. 3½d.
10,500 ft. of 10 in. by 6 in. edge Norway curb, at 1s. 3½d.

Goodchild & Co., 118, Fenchurch-street, E.C.:—
250 tons of 6 in. by 4 in. Norway pitchers, at 26s. 6d.

† Guernsey. ‡ Norway.

BRITON FERRY (Glam.).—For the construction of a reservoir, filter-bed, &c., for the Urban District Council. Mr. Togarmah Rees, C.E., Corn Exchange-chambers, Newport, Mon.:—
James Allan, Cardiff £16,437 6

BRIXHAM.—For the erection of a caretaker's cottage, for the Brixham School Board. Messrs. Norman G. Bridgman and Walter H. Bridgman, architects, Torquay, Paignton, and Teignmouth. Quantities by Mr. Vincent Cattermole Brown, of Paignton:—

T. Brown	£428	Smaridge & Curtis	£329
Webber & Maunder	404	Cooksley	290
E. P. Dovey	385	Silloy	275
E. Pike	374	W. Wyatt.....	256

[Architects' estimate, £300.]

BROMHAM (Bedfordshire).—For the erection of a country house for Mr. W. H. Allen. Mr. George P. Allen, architect, 26, Great Ormonde-street, Russell-square, W.C.:—
S. Foster, Kempston £6,128

CARISBROOKE.—For making a new road at Carisbrooke for the Isle of Wight Rural District Council. Mr. J. E. Haynes, Surveyor:—

M. Drake	£175 0 0	James Lowe*	£109 7 6
G. H. Coker	139 0 0		

*Accepted.

CATERHAM.—For erecting a house on Caterham Manor Estate, for Mr. Paul. Messrs. Berney & Son, architects:—

S. Page	£2,930	J. E. Saunders.....	£2,669
Winburn	2,914	Whitehead & Co.	2,644
Debenham	2,878	Marriage & Co.	2,619
Thompson	2,869	W. Smith & Son.....	2,569
D. W. Barker	2,814	Cheeseman	2,419
J. Smith & Sons.....	2,810	Sidney Hart	2,336
Hanscomb & Smith	2,804	Carnick (accepted).....	2,199

CHALE.—For widening a road at Chale, I. W., for the Isle of Wight Rural District Council. Mr. J. E. Haynes, Surveyor:—

J. Linnington & Son £167	0	James Lowe*	£105 10
G. H. Coker 120	0		

*Accepted.

CHELMSFORD.—For two villa residences, Mount Hill-avenue. Mr. R. Mawhood, architect, Chelmsford:—

No. 1.

Moss & Co. £560	H. Potter, Chelmsford* £530

No. 2.

Smith & Son	£480	W. Samms, Chelmsford*....	£397
E. Saltmarsh	447	H. Potter	430
W. Fincham	431		

No. 3.—Pair of Cottages, Primrose Hill.

W. Fincham	£495 0	H. Potter.....	£480 0
W. Samms	492 0	J. Gowers, Chelmsford*..	420 0
E. Saltmarsh.....	482 10		

* Accepted.

COCKETT (near Swansea).—For erecting the Gendros School, for 350 children, for the Cockett School Board (near Swansea). Mr. G. E. T. Laurence, architect, 181, Queen Victoria-street, E.C. Quantities by Messrs. W. H. Barber & Son, 22, Buckingham-street, Adelphi, W.C.:—

	Buildings.	Wood block Floors.	Total.
Battray & Jenkins.....	£3,300 0 0	..£255 10 0	..£3,555 10 0
Thomas Watkins & Co.	3,179 3 11	.. 62 7 10	.. 3,241 11 9
Thomas Waters.....	2,810 12 8	.. 264 14 6	.. 3,075 7 2
H. Billing.....	2,880 12 6	.. 174 11 1	.. 3,055 3 7
David Rees.....	2,987 0 0	.. 30 0 0	.. 3,017 0 0
David Jenkins.....	2,899 0 0	.. 44 0 0	.. 2,943 0 0
Lloyd Bros.....	2,750 0 0	.. 20 10 0	.. 2,770 10 0
Gustavus Bros.	2,565 0 0	.. 82 4 0	.. 2,647 4 0
Thomas Davis	2,599 0 0	.. 24 12 8	.. 2,623 12 8
J. & F. Weaver	2,530 0 0	.. 75 0 0	.. 2,605 0 0
Elias Morgan	2,604 0 0	.. —	.. *2,604 0 0

* Accepted subject to Education Department's approval.

COVE (Hants.).—For the erection of an additional class-room for sixty children, with lavatory, &c., to the Board Schools. Mr. A. E. Hall, architect, Frimley, Surrey:—

G. Finch	£575 0	Leaming, Crookham, Hants (accepted).....	£549 0
W. Smith	571 10		

CROSSHAVEN (Co. Cork).—Accepted for the erection of a residence. Mr. C. F. O'Sullivan, C.E., architect, Queen-street, Cork:—
J. Kelleher, 14, Sundays Well-road..... £395.
[Lowest of four tenders received.]

CROYDON.—For alterations and additions at the Board Schools, Mitcham-road, Croydon, including new class-room and cloak-room infants' department, new water-closets, offices, and playsheds, and bath-room to master's house, for the Croydon School Board. Mr. Robert Ridge, architect, 12, Katharine-street, Croydon:—

E. J. Saunders	£1,250	D. W. Barker	£1,175
Umlandt & Nichol	1,215	A. Bullock.....	1,162
W. Smith & Son	1,192	H. Bacon	1,120
E. Goulder	1,188	D. Waller	1,100
S. Hart	1,176	E. P. Bulled & Co.*	1,067

[All of Croydon.]
* Recommended for acceptance.

CULLEN (N.B.).—For the execution of water-supply works, for the Cullen Police Commissioners and the Countess of Seafield. Mr. Geo. Ross, Burgh Surveyor, Cullen, N.B. Quantities by Messrs. Alex. Smith and G. Ross:—

Plumbing—John Barclay	£413	9 8
Masonry— " "	239	4 3
Smiths' Work.— "	98	17 9
Total.....	£751	11 8
Plumbing.—Wm. Beveridge, Cullen*	410	12 0
Masonry.— " " "	238	0 0
Smiths' Work.— " " "	99	15 0
Total.....	£748	7 0
For Whole Work.—J. Grant	816	11 0
" " Campbell Brothers	765	12 0
Masonry Only.—George Mair	295	0 0
" " Jas. Bremner	240	0 0

* Accepted.

DURHAM.—For the erection of twelve workmen's houses, Mitchell-street. Mr. Geo. Ord, architect, 16, The Avenue, Durham:—

Masonry and Bricklaying.—J. G. Bradley .....
Joinery.—T. W. Mowbray..... } £1,372
Plumbing.—Heron & Brown..... }
Plastering.—T. Nesbitt .....
Slating.—T. W. Blakey .....
Painting.—T. H. Dodd .....

[All of Durham.]

ELLAND (Yorks.)—Accepted for the execution of drainage works (Contract No. 4), for the Urban District Council. Mr. M. Paterson, Engineer, 35, Manor-row, Bradford:—
Wm. Foster, Bingley, Yorkshire £3,470 13 4

GLYNCORRWG (Wales).—Accepted for alterations, &c., to school buildings, for the School Board. Messrs. Lambert & Rees, architects, Bridgend:—
D. Lloyd, Cymmet, nr. Port Talbot £395 15 0

GOOD EASTER (Essex).—Accepted for a pair of cottages and repairs to "Fouchers." Mr. R. Mawhood, architect:—
Holland & Unwin, Great Leighs £605

HELSTON (Cornwall).—For the execution of drainage works, Porthleven, for the Rural District Council of Helston. Mr. W. K. Jenkins, C.E., Torleven House, Porthleven:—
Thomas & Son, Crowan £1,321

KINGSWEAR.—For additions to "Bryndart," Kingswear, for Major C. P. Dean. Messrs. Norman G. Bridgman & Walter H. Bridgman, architects, of Torquay, Paignton, and Teignmouth. Quantities by Mr. Vincent Cattermole Brown, of Paignton:—

H. Webber & Sons ..£212	0 0	R. C. Pillar	£198 2 6
James Short..... 210	0 0	E. P. Bovey*.....	198 0 0
E. Pike 200	0 0		

* Accepted.
[Architects' estimate, £200.]

KINGSWEAR.—For erecting a villa residence, for Mrs. Walker, Messrs. Norman G. Bridgman & Walter H. Bridgman, architects, of Torquay, Paignton, and Teignmouth. Quantities by Mr. Vincent Cattermole Brown, of Paignton:—

R. T. Pillar	£793	E. Pike	£706
G. Webber & Maunder	762	Smaridge & Curtis	685
S. Blachford	750	E. P. Bovey*	685
H. Webber & Sons	716		

* Accepted.
[Architects' estimate, £700.]

LONDON.—For the erection of additions and alterations to the Mineral Water Factory, Munster-road, Fulham, S.W., for Messrs. Batey & Co., Limited. Mr. A. E. Howse, architect, 79, Broomwood-road, Wandsworth Common, S.W.:—

J. Ivory	£849 10	Stimpson & Co.	£714 0
W. R. Williams.....	790 0	Turtle & Appleton*	670 0
George Parker.....	725 0		

* Accepted.

LONDON.—Accepted for structural works, and general repairs to sixteen houses in Hunt-street, Latimer-road, W. Mr. Arthur W. Tribe, architect, 91, Clapham-road:—
Hoare & Son, Blackfriars £980

LONDON.—For additions and improvements at Nos. 120 and 122, Clapham-road, S.W., for Dr. W. P. Fox. Mr. Arthur W. Tribe, architect, 91, Clapham-road:—
Hoare & Son ..... £744 | Peacock Bros., Brixton* £645
* Accepted.

LONDON.—For the erection of four houses in Dorset-road, Clapham-road, for Dr. W. P. Fox. Mr. Arthur W. Tribe, architect, 91, Clapham-road:—

Hoare & Son	£1,596	Hibberd Bros., South Lambeth*.....	£1,108
Peacock Bros.	1,510		
Edwards & Medway	1,475		

* Accepted.

LONDON.—For the erection of a bakery at Charlton-place, Islington, for Messrs. Brett & Beney. Mr. Geo. Waymouth, architect, 23, Moorgate-street, E.C. Quantities by Mr. A. Paull, 6, Quality-court, W.C.:—

F. & H. F. Higgs.....	£5,900	Patman & Fotheringham	£5,491
Colls & Sons	5,795	Johnson & Co.	5,489
R. D. Lown & Son	5,690	Dove Bros.	5,375
Sabey & Son	5,597		

LONDON.—For alterations to No. 11, Church-street, and No. 7, Horse and Groom-yard, Westminster, for Mr. J. L. Moone. Messrs. Waring & Nicholson, architects, 55, Parliament-street, Westminster, S.W.:—

F. C. Hoskings	£420	Lapthorne & Co.	£384
T. Hooper	397	H. Hall*	336
Peacock Bros.	394		

* Accepted.

LONDON.—For alterations and additions to Argyle Lodge, Tulse Hill, for Mr. J. C. Lovell. Messrs. Yetts, Sturdy, & Usher, architects, 144, Finsbury-pavement:—

Candler & Son	£1,200	Woodward & Co.	£1,170
Faulkner & Sons	1,187	John Ham & Son*.....	1,147

* Accepted.

LONDON.—For the erection of Iffley-buildings on the Boundary street area, for the London County Council. Mr. Thomas Blashill, Architect:—

H. Faulkner & Co.....£4,763		T. L. Green.....	£4,479
J. Shilletoe & Son 4,715		R. A. Yerbury & Sons*..	4,109
G. E. Todd 4,647			

* Accepted.
[The amount of the Architect's original estimate was £3,900, but this figure was, owing to the rise in the price of materials, subsequently altered to £4,180.]

MERTHYR TYDFIL.—For the execution of sewerage works, Mount Pleasant, Merthyr Vale, for the Urban District Council. Mr. F. T. Harvey, Engineer, District Council Offices, Merthyr Tydfil:—

Gall & Farquharson ..£575	4 9	W. Lewis.....	£409 17 3
Amos & Harries 546	10 10	Frazer	401 14 7
G. Hancock 527	4 9	Gage	389 17 3
J. Williams 447	19 11	Parry	384 6 5
J. Preece, Marden Hereford*..... 440	14 11		

* Accepted. Council to supply ironwork.

NEWTON ABBOT (Devon).—For the execution of water supply works, Kingsteington, for the Rural District Council. Mr. S. Segar, Surveyor, Union-street, Newton Abbot. Quantities by Surveyor:—

Wm. Shaddock £2,940	0 0	Rafarel & Co.....£2,125	0 0
W. H. Berry 2,530	0 0	Parker Bros. 2,100	0 0
E. Jenkins & Son .. 2,357	0 0	A. Thomas 2,031	13 11
Gabriel Bennett 2,340	0 0	M. Bridgman 1,961	1 10
S. Mason, Limited.. 2,300	0 0	Dart & Pollard 1,858	0 0
R. R. Facey..... 2,200	0 0	Hawking & Best, Teignmouth*	1,850 0 0
Fisher..... 2,178	13 0		
Veale & Son 2,170	0 0		

* Accepted.

NOTTINGHAM.—For the enlargement of Quarry-road Board School, Nottingham. Mr. A. H. Goodall, architect, Nottingham:—

J. Carlin	£3,625 0	Dennett & Ingle	£2,967 0
(Unsigned)	3,585 0	T. Barlow	2,936 0
J. H. Vickers	3,378 0	F. H. Wilkinson	2,901 16
J. Shaw.....	3,150 0	W. Pinkett	2,895 0
G. A. Pillatt	3,065 0	T. Cuthbert	2,830 15
J. Oscroft.....	3,031 0	J. Hutchinson, Nottingham*	2,800 0
Appleby & Lambert ..	2,998 0	(Unsigned)	2,734 0
(Unsigned)	2,997 0		
J. Musson	2,975 0		

* Accepted.

PAIGNTON.—For works at Primley House, for Mr. H. C. Belfield. Messrs. Norman G. Bridgman and Walter H. Bridgman, architects, Torquay, Paignton, and Teignmouth. Quantities by Mr. Vincent Cattermole Brown, of Paignton:—

Drainage and Sanitary Work.

R. Harris	£365	G. Webber & Maunder	£290
C. & R. E. Drew	307	H. Webber & Sons*	299
E. Pike	300		

[Architects' estimate, £300.]

For Fixing Grates.

H. Webber & Sons* £27 12

For Painting and Papering.

S. Tucker	£130 0	H. Webber & Sons*	£94 0
Mitchell & Son	114 0	J. Thomas & Son	92 10

* Accepted.

PAIGNTON.—For erecting a villa residence, for Mr. William Tozer. Messrs. Norman G. Bridgman, and Walter H. Bridgman, architects, Torquay, Paignton, and Teignmouth. Quantities by Mr. Vincent Cattermole Brown, of Paignton:—

G. Webber & Maunder	£508 10	H. Webber & Sons	£485 0
Smaridge & Curtis	498 0	R. Harris*	460 0
E. Westlake	490 0		

* Accepted.

[Architects' estimate, £500.]

PAIGNTON.—For erecting Constitutional Club rooms and business premises, for Mr. Thomas Adams. Mr. Walter G. Couldrey, architect, of Paignton. Quantities by Mr. Vincent Cattermole Brown, of Paignton:—

E. Westlake	£1,798 0 0	G. Webber & Maunder	£1,479 11 0
E. P. Bovey	1,695 0 0	T. Brown	1,450 0 0
R. Yeo	1,580 0 0	M. Bridgman, Paignton*	1,434 17 6
H. P. Rabbich	1,574 0 0		
H. Webber & Sons	1,537 0 0		

* Accepted with modifications.

SLAPTON (S. Devon). — For additions and alterations to "Higher Start," for Mr. H. G. Morgan. Mr. H. Vickery, architect, Torcross, Kingsbridge:—

	House.	Stables.
W. Edgcombe	£812 15	£78 10
A. Brooking (accepted)	735 0	61 0

SOUTHEND-ON-SEA.—For sewering and road-making on the Avenue Estate, Southend-on-Sea. Mr. Arthur T. A. Bowyer, surveyor, 90, Leadenhall-street, E.C.:—

W. Buxton	£532 0	W. Iles, Southend*	£515 15

*Accepted.

STONDON MASSEY (Essex). — Accepted for additions to "Chivers." Mr. R. Mawhood, architect:—

H. Barlow, Ongar £617 15

TRURO.—Accepted for the execution of work at St. John's Schools. Mr. Wm. Swift, architect, 23, Lemon-street, Truro:—

H. Tippett, Lemon-street, Truro £2 9

TYNEMOUTH.—For paving, &c., George-street East, and Eleanor-street, Cullercoats, for the Urban District Council. Mr. J. F. Smillie, Borough Surveyor, Tynemouth:—

G. E. Simpson	£178 2 10	Jos. Wardlaw, New-gate-st., Morpeth*	£144 9 9
Thornton & Co.	172 13 11		

* Accepted.

WALSALL.—For sewering, &c., Chapel-street, Blakenall, and Providence-lane, Leamore, for the Corporation:—

Chapel-street.

James Atkins, Ryecroft, Walsall £98 17 0

Providence-lane.

James Atkins, Ryecroft, Walsall £485 4 0

WELLINGBOROUGH.—For the erection of a technical institute, Council chamber, &c., for the Urban District Council. Messrs. Sharman & Archer, architects, Wellingborough:—

G. Brown & Son	£4,392	W. Berrill	£3,990
T. H. Dorman	4,165	W. Stevens*	3,990
W. Goodman	4,148	W. J. Harrison†	3,800
Hacksley Bros.	4,073		

* Accepted. † Withdrawn.

[All of Wellingborough.]

WIDNES.—For the erection of cemetery chapels, &c., Moss Brook, for the Corporation. Mr. J. S. Sinclair, C.E., Town Hall, Widnes:—

C. Burt	£7,153	Hughes & Stirling	£5,760
Wm. Winnard	6,633	G. Parker & Co.	5,699
E. Gabbutt	6,325	Paterson & Son	5,620
John Matthews	6,330	P. Tickle	5,499
Joseph Ellison	6,142	G. Rathbone	5,270
G. Woods & Son	5,995	Thomas Sadler, Widnes*	5,125

* Accepted.

LONDON SCHOOL BOARD TENDERS.

At the meeting of the London School Board on Thursday the following lists of tenders were considered:—

SCAWFELL-STREET.—Providing additional heating:—

W. G. Cannon & Sons	£148 0	J. F. Clarke & Sons	£119 0
J. Fraser & Son	140 0	H. C. Price Lea & Co.	109 0
J. C. & J. S. Ellis, Ltd.	134 10	Duffield & Co.*	84 0

"ASHBURNHAM."—Erecting Upper Standard rooms, water-closets, &c.:—

	Amount of Tender.	Extra amount required for building brickwork in cement.
Holloway Bros.	£6,132 0 0	£86 0 0
G. S. S. Williams & Son	6 053 0 0	125 0 0
W. Shurmur	5 986 0 0	130 0 0
R. A. Yerbury & Sons	5,946 0 0	120 0 0
J. Shillitoe & Son	5.940 0 0	100 0 0
Treasure & Son	5 816 0 0	120 0 0
Perkins & Co.	5.318 0 0	122 0 0
D. Charteris	5,244 0 0	130 0 0
Lathey Bros.	5,281 0 0	86 0 0
W. Downs	5,234 1 6	116 4 0
Stimpson & Co.	5,195 0 0	118 0 0
C. Cox	5,093 0 0	102 0 0
J. & M. Patrick	5,006 0 0	105 0 0
E. Lawrance & Sons*	4,990 0 0	99 0 0

PENROSE-STREET.—Rebuilding offices, &c.:—

J. Grover & Son	£2,500	J. Marsland	£2,375
C. Cox	2,474	G. Munday & Sons	2 279
J. Garrett & Son	2,380	E. Triggs	2,220
E. Lawrance & Sons	2,368	W. Akers & Co.	2,219
W. Downs	2,352	Lathey Bros.	2,212
Stimpson & Co.	2,346	Holliday & Greenwood*	1,997
Dove Bros.	2 345		

SHERBROOKE-ROAD.—Erecting Higher Standard rooms, &c.:—

	Amount of Tender.	Extra amount required for building brickwork in cement.
W. Downs	£4,644 18 0	£83 7 0
W. Shurmur	4,553 0 0	120 0 0
T. Boyce	4,578 0 0	55 0 0
Perkins & Co.	4,548 0 0	65 0 0
Treasure & Son	4,511 0 0	85 0 0
Lathey Bros.	4,387 0 0	75 0 0
Dove Bros.	4,338 0 0	95 0 0
C. Cox	4,290 0 0	85 0 0
R. A. Yerbury & Sons	4,277 0 0	95 0 0
E Lawrance & Sons	4 235 0 0	95 0 0
Stimpson & Co.*	4,124 0 0	113 0 0

* Recommended for acceptance.

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G. H. D. (Amount should have been stated).

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Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

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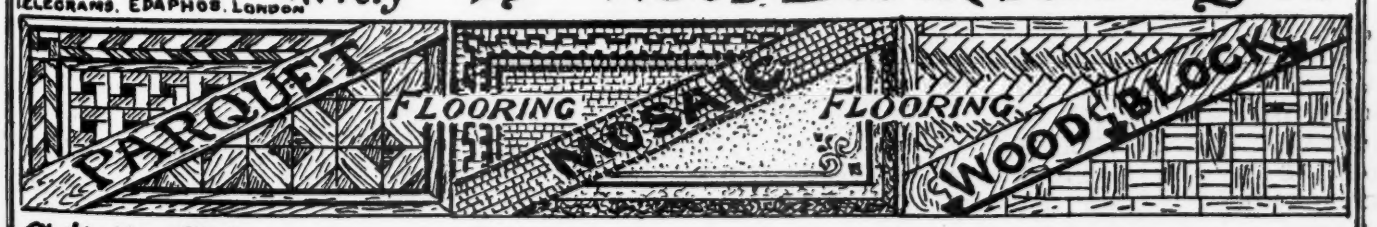

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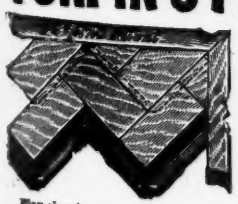

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G. SCORER, 28, Newman-street, W.

ADDITIONAL CAPITAL.—Manufacturers, Merchants, or Industrial Limited Companies in want of ADDITIONAL CAPITAL can obtain same through a firm of Financial Agents at Bank rate of Interest. No commission charged unless business results. Principals or their Solicitors only treated with.—Address, CAPITAL, 1,540, care of Messrs. Deacon's, Leadenhall-street,

LEEDS FIRM, calling upon architects, builders, ironmongers, &c. throughout the North of England, wish for one or two good AGENCIES to work along with their own business. Good show room and storage accommodation if necessary. Address, GREEN, Advertising Contractor, 88, Albion-street, Leeds.

PARTNERSHIP WANTED by young Architect. First-class draughtsman, with good practical experience. Could introduce small capital.—Box 238, Office of "The Builder."

PARTNERSHIP WANTED by a Gentleman with an ARCHITECT and QUANTITY SURVEYOR of good standing, with scope for partner. Arrangement made only after mutual satisfaction on both sides. All particulars will be treated as strictly private.—Communications to be addressed, in first instance, to Box 244, Office of "The Builder."

ARCHITECTURAL. — OPENING for JUNIOR PARTNER in old-established Architect's firm. Moderate purchase sum for share.—Address, stating experience, to No. 66, Keith & Co. Advertising Agents, Edinburgh.

TO ARCHITECTS.—GOOD LIGHT OFFICES TO BE LET. Gas and electric light. Excellent situation. Two rooms, second floor 35*l.*—Apply, HOUSEKEEPER, No. 17, Buckingham-street, Charing Cross.

RICHMOND UNION, SURREY.
APPOINTMENT OF VALUER TO THE ASSESSMENT COMMITTEE.

Notice is hereby given that the Guardians of the Poor of the Richmond Union will, at their meeting to be held at the Board Room, Richmond Workhouse, on the 11th day of March next at TEN o'clock in the forenoon, proceed to the APPOINTMENT of a VALUER to the Assessment Committee for the period of one year at a salary after the rate of 135*l.* per annum, to be considered as remuneration for all work connected with the office, subject to statutory deduction under the Poor Law Officers' Superannuation Act 1896.

The person appointed will be required to reside in the district of the Union, to attend all meetings of the Committee, and at Special and Quarter Sessions when instructed so to do, and must be prepared to enter upon his duties at Lady Day next.

Applications to be sent to my office, No. 17, The Green, Richmond, on or before the 1st day of MARCH next, where particulars of the duties of the Office can be ascertained.

Any Candidate canvassing the Guardians will be disqualified for the office.

By order of the Board,
ALFRED JNO. WOOD,
Clerk to the Guardians.

Richmond, February 18th, 1897.

BOARD of WORKS for the POPLAR DISTRICT.
TO SURVEYORS' CLERKS, AND TO DRAUGHTSMEN.

Notice is Hereby Given that the Board require the SERVICES of a CLERK in the Surveyor's Department, who must be proficient in all matters relating to the prime cost of work executed by the Board, and capable of abstracting such cost and keeping a proper debtor and creditor account thereof. No one but persons able to fulfil the above duties need apply.

Age between 25 and 35 years. Salary 120*l.* per annum, increasing 10*l.* per annum to 150*l.*

Also a DRAUGHTSMAN for the Surveyor's Department.

Age between 25 and 35 years. Salary 150*l.* per annum, increasing 10*l.* per annum to 200*l.*

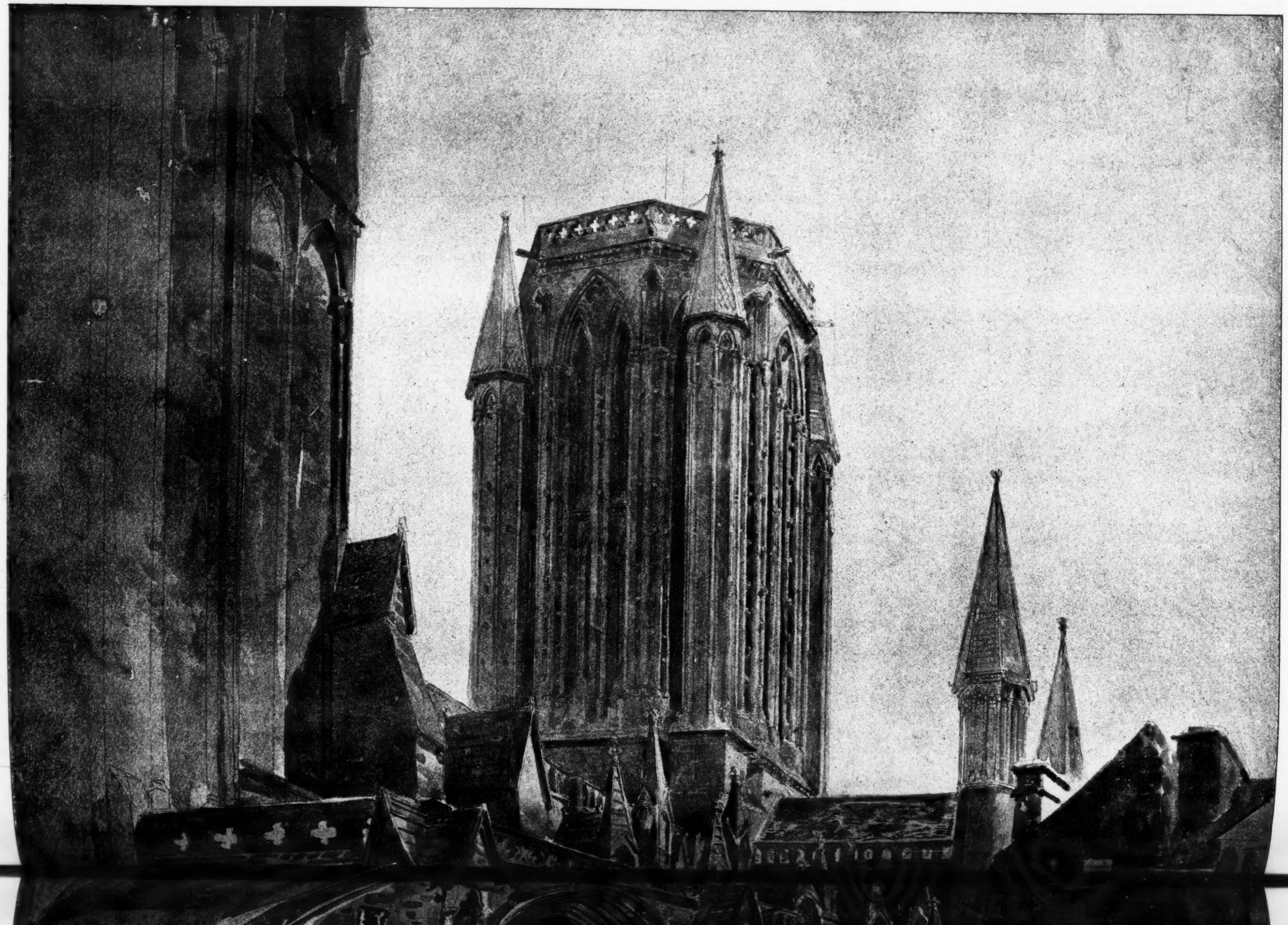
No superannuation allowance will be granted by the Board to either officer, and the tenure of the appointments to be subject to the pleasure of the Board.

Applications, stating previous experience, with not more than three testimonials, to be forwarded to the undersigned, on or before the 1st prox. endorsed with the nature of the position sought.

Canvassing any member or official of the Board will absolutely disqualify.

WM. HENRY FARNFIELD, Clerk.

Offices: 117, High-street, Poplar,
February 16th, 1897.



INK-PHOTO. SPRAGUE & Co 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

COUTANCES CATHEDRAL: SOUTH SIDE.—From a Drawing by the late W. W. Deane.

(One of the illustrations to Professor Aitchison's Royal Academy Lectures.)

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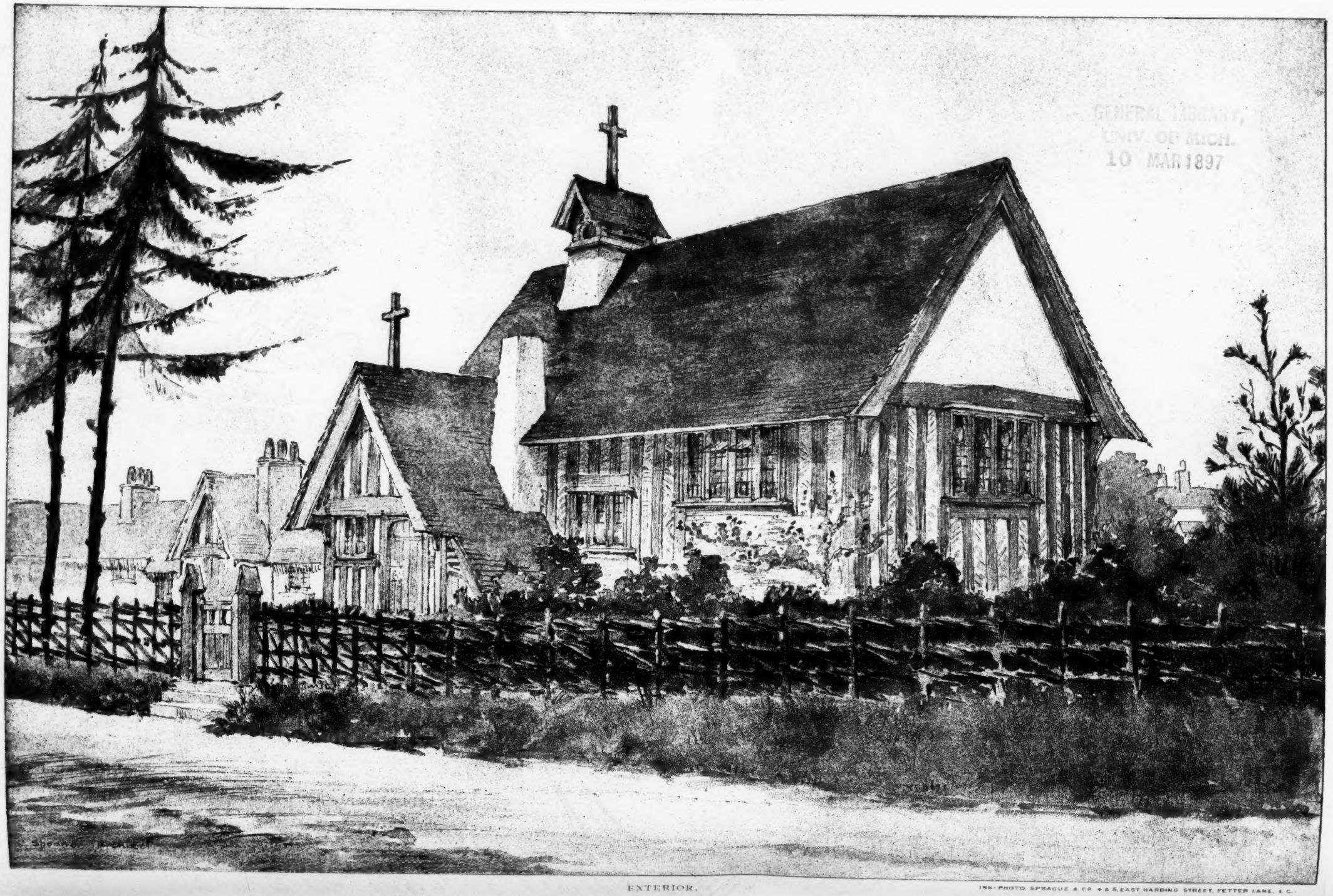

EXTERIOR.

INK-PHOTO. SPRAGUE & Co 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

A ROADSIDE MASS CHAPEL, AT HADLEIGH, SUFFOLK.—MR. C. SPOONER, ARCHITECT.

EXTERIOR.

A ROADSIDE MASS CHAPEL, AT HADLEIGH, SUFFOLK.—Mr. C. Spooner, Architect.

INK-PHOTO, SPRAGUE & Co. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

INTERIOR.

A ROADSIDE MASS CHAPEL, AT HADLEIGH, SUFFOLK.—Mr. C. Spooner, Architect.

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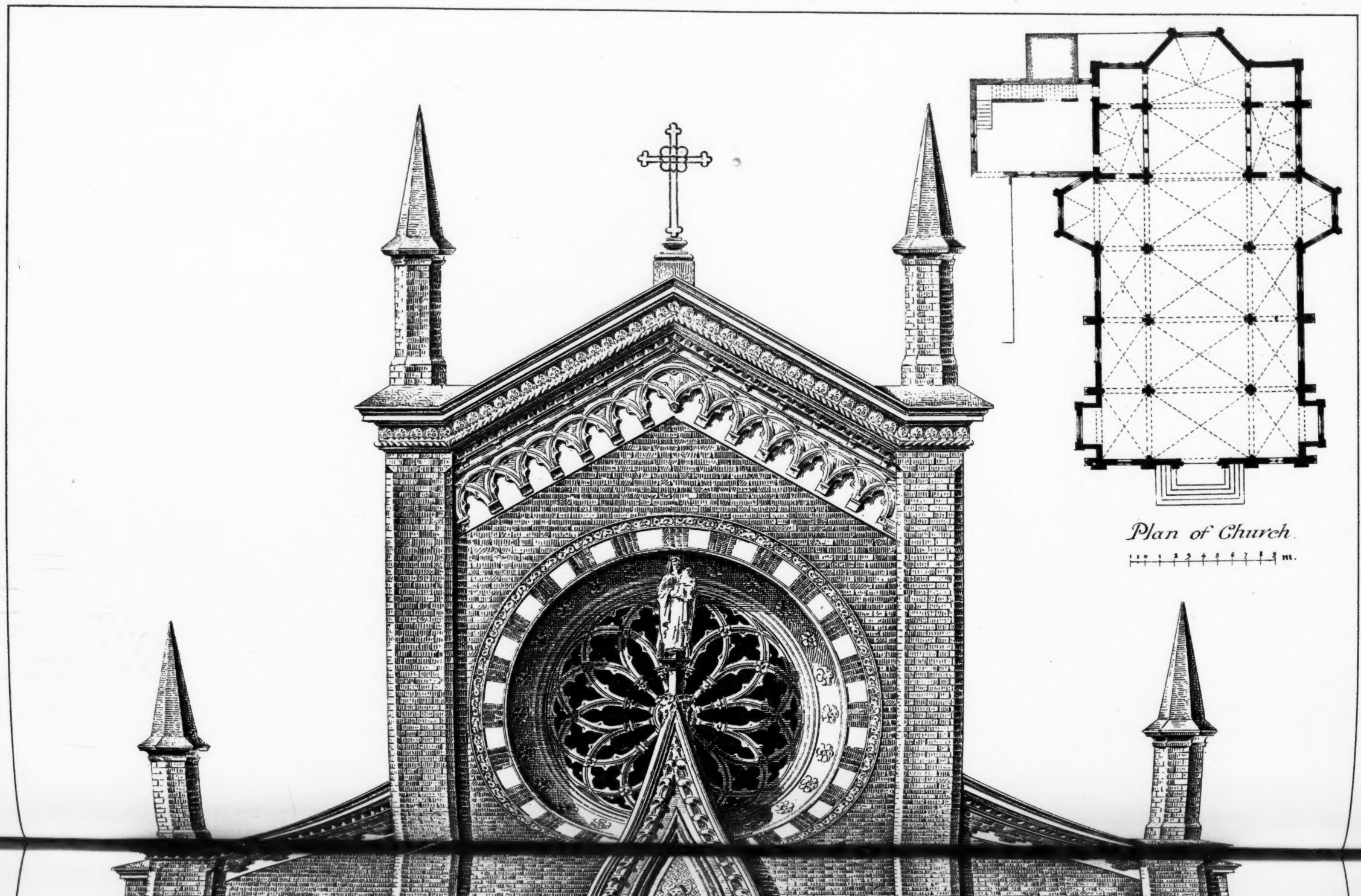

Plan of Church.

m.

CHURCH AT PALLERA, ITALY.—Signor G. Gallo, Architect.

1 0 1 2 3 4 5 Metri

Drawn by S. Frizzoni.

PHOTO-LITHO. SPRAGUE & Co 4 & 5 EAST HARDING STREET FETTER LANE E.C.

INK-PHOTO. SPRAGUE & Co 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

SOUTH DOORWAY, ROUEN CATHEDRAL.—From a Drawing by the late W. W. Deane.

(One of the illustrations to Professor Aitchison's Royal Academy Lectures.)

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